

Original Articles.

THE DOUBLE COMMISSIONS

By D G CRAWFORD, M B,

LIEUTENANT COLONEL, I M S,

Civil Surgeon, Hughli

TRADITION exists, or used to exist, that in early days of the Indian Medical Service, its first foundation on 1st January 1764, appointed to the service held commissions combatant officers, in addition to their appointments as Assistant-Surgeons, entering the service as Ensign or Lieutenant and Assistant-Surgeon, and performing then double duties, combatant and medical, indiscriminately, or both at the same time, until promoted. When a man's came for promotion, either to Captain or to Surgeon, he was obliged to make his choice between the two branches, either taking the promotion which came to him, and permanently relinquishing the other branch, or once for all giving up it, if he preferred to wait for promotion in the other branch.

Such a combination of duties seems strange in these times of greater specialisation, and would now be an impossibility. But a half and a half ago things were different, in many cases a man might have no great difficulty in carrying on both duties at the same time, or in changing from time to time from the one to the other.

The subject has always appeared to me one of great interest, and I have searched carefully for information bearing upon it in all the original documents which I have had the opportunity of consulting. It seems to me certain that no such combination of duties ever existed as a general rule.

But undoubtedly some individuals did hold double rank, military and medical, simultaneously, for several years, until they made their final choice. This choice, in one case at least, was bitterly resented by the juniors of the favoured officer, who vainly protested that he had left the Medical Department years before, and had no claim to revert thereto.

The officer in question, Francis Balfour, took his M. D. degree at Edinburgh in 1767, was appointed to the Indian Medical Service in England in November 1768, and was ranked Assistant-Surgeon from 31st July 1769, probably the date of his arrival in India. Eight years later, on 11th July 1779, he received a

commission as Ensign, became Lieutenant on 26th June 1771, and Surgeon on 10th August 1777, when he relinquished his combatant rank. He was fortunate in his promotion, becoming Head Surgeon a few years later, and officiating in the Medical Board from 15th January 1788. He did not, however, reach the Medical Board permanently until 1798. He retired on 16th September 1807, and was living up till 1816.

When Balfour was promoted to Full Surgeon, and returned to the medical line, three Assistant Surgeons, W R Munro, J Ferguson, and J Boyd, who considered themselves aggrieved by their supersession by an officer who they thought had years before quitted the Medical Department, memorialised the Government against his promotion. Balfour's answer to their memorial is as follows²—

Read letter referred to Medical Board by Council To the Hon'ble John Macpherson, Esq, Governor-General, and Members of the Supreme Council.

Hon'ble Sir and Sirs,—The Remonstrance of Mr Munro, Mr Ferguson and Mr Boyd against my Rank, to which I am desired by your Hon'ble Board, to reply, seems to contain four objections or arrangements³ which I shall consider separately. However, I cannot help expressing my surprise that a Remonstrance addressed in July 1784 to the Hon'ble Warren Hastings, Esq, should be for the first time transmitted to me for a reply in August 1786, when Mr Hastings is no longer Governor-General, and when Mr Ferguson, one of the gentlemen who signs the Remonstrance, has been more than a twelve month dead. These circumstances subject the Remonstrance in its present form to much Objection and remark, but being eager to obey implicitly every Order of your Hon'ble Board, I shall proceed to communicate all the information you may require upon the points in Question.

The following are all the Objections that seem to be contained in the Remonstrance.

- 1st That I resigned my Appointment of Assistant Surgeon
- 2nd That previous to my promotion to the Rank of Full Surgeon, I never did more than a few months' duty
- 3rd That I have obtained my promotion to the Rank which I hold contrary to the Custom of Service, and to the Adjustment of Field Officers who sat for that purpose
- 4th That the Case of Mr Craigie is exactly parallel to mine, and that the decision of the Military Board in that case, furnishes a rule for determining my Rank

1st—With regard to the first I must inform your Hon'ble Board that when I received a Commission in the Army I never did resign my appointment of Assistant Surgeon, my eagerness to acquire the Persian language, and my desire to give myself as much as possible to this study prevented me, it is true, from applying for several Months at this period for any medical charge, because I found that it would be too great an interruption to the object I had in view. But I never relinquished my Claim to the indulgence

* This letter is embodied in the proceedings of the Calcutta Medical Board of 14th September 1786, which may be seen in the Record Office in Calcutta. These proceedings are contained in 289 thick folio volumes of bound manuscript, and run from 1786 to 1854. Balfour's letter, and also Thomas Anderson's letter of 21st June 1786, given below, are summarised in a paper called "Gleanings from the Early Records of the Bengal Medical Department," by T H Hendley, CIE, IMS, in the Transactions of the Indian Medical Congress of 1894 (pp 402—407).

² See (arguments?)—D G C

Assistant-Surgeons were, strictly speaking, not commissioned officers, but were appointed on warrants, until 24th October 1788, when the Governor General, Lord Cornwallis, withdrew their warrants, granting them commissions as officers instead. For the last thirty years the title of Assistant Surgeon has been confined to the Sub Medical Departments, Military and Civil. But up to the 1st July 1873 all medical Officers, entering both the A M D and the I M S, entered as Assistant Surgeons, and held that rank for twelve years.

which the Service then afforded, of enjoying both appointments and of choosing and attaching myself to that line, which I should like best, when it should become necessary by arriving at a certain Rank to keep the other

2nd—In reply to the second Objection of the Remonstrance I must inform your Hon'ble Board, that, instead of doing duty only for a few months, previous to my promotion to the rank of Full Surgeon, I will pledge myself to prove that I did duty effectually and officially not less than *five years*, with Success and Reputation

In 1769, I acted as an Assistant-Surgeon at the Presidency and in the Hospital, immediately after my arrival, and before I got a Subaltern's Commission, about six months

In 1770, I acted as an Assistant Surgeon with the Troops at Gretty, under the command of Sir John Cummings, about six months

In 1771, I lost my health, was obliged to leave Bengal, and was not able to return to my duty for many months

In 1772 being still intent upon the study of the Persian language, I confin'd myself to the duty of an officer, and applied for no medical charge. During this interval however I was not altogether useless to the service in the line of Physic. For in the course of this year, I put into form the Medical Observations I had collected during the two unhealthy seasons in which I was employed at Calcutta and Gyretty. These observations describe a successful and I may say a certain method of curing the destructive Remittent Fever of Bengal by giving the Bark in the Fit as well as in the Remission of the Fever. This practice was *first* introduced by me immediately after my arrival, and I hope it will not be overlooked by your Hon'ble Board in forming an estimate of my services previous to my promotion to the Rank of Full Surgeon

In 1773, finding that the attainment of the Persian was now within my reach, I applied for, and obtained the charge of a detachment that was then proceeding to Cooche Behar, and I acted in that unhealthy country as an Assistant Surgeon about 14 months

In 1774, after my return from Cooche Behar I acted for five months as an Assistant Surgeon at Chunarghur under the command of Colonel Muir, and had charge of the Hospital, whilst Mr. Armstrong was sick

In search of the health which I had lost in Cooche Behar and which I did not recover for several years, I went to Madras, in December, 1774. I was there appointed Surgeon to the Nabob, and attended him for the space of three years, the Nabob himself applying at the expiration of every year to the Government of Bengal for permission to detain me in that Capacity. By this detail your Hon'ble Board will perceive that previous to my promotion to the rank of Full Surgeon I was officially employed in the medical line not less than five years. And all that the Authors of the Remonstrance can possibly urge against my rank, amounts to not more than this, "That for the space of a few months whilst they were proceeding in the common road of their Profession, I confined myself solely to the duty of an officer, and employed all the hours of my leisure, ambitiously laboring to recommend myself to my Hon'ble employers, by facilitating the study of the Persian language, the knowledge of which is inseparably connected with their prosperity in India." This application of my time has received the approbation of the Supreme Council and of the Court of Directors, and another Gentleman of the Faculty who is now engaged in labors similar to mine, has, on this account, not only been excused from all medical duty for a much longer period, but has, besides, been honored with other Indulgences and testimonies of encouragement from your Hon'ble Board

3rd—I now proceed to consider the third objection of the Remonstrance, viz., "That I was promoted to the Rank of Full Surgeon contrary to the Custom of the Service, and to the arrangement of the Medical List by the Board of officers who sat for that purpose in 1777"

When I arrived in Bengal, and until within these few years, I have already observed, that it was customary in the service, for an Assistant Surgeon to hold likewise a Subaltern's Commission in the Army, and he was allowed to retain both until he arrived at the rank either of a Full Surgeon or of a Captain, at which time he was obliged to relinquish his other appointment, and to attach himself to that line only in which he had received his promotion. Mr. Cranston enjoy'd both for several years, and held them both at the time of his death, and if I be not mistaken Captain Frederick Breton held both until he was promoted to the rank of Captain, at which time he lost his appointment of Assistant Surgeon

There are other examples which I don't recollect exactly

In these examples your Hon'ble Board will discern the Custom of the Service at the time in question, and it is in Conformity to that rule, that I have arrived at my present rank on the list of Surgeons. I held both appointments until I returned from Madras in 1778. I was then promoted and became a Full Surgeon, and dropt, of course, my Commission in the Army

With respect to the adjustment of the Medical List by the Board of officers in 1777, your Hon'ble Board will easily determine with what degree of Justice any arrangement made by them is proposed as a rule for ascertaining my rank, when you are informed that during the whole interval in which they were constituted, sat, and were dissolved, and for many months afterwards, I was absent at Madras, never heard of it, and knew nothing of these proceedings, until I arrived in Bengal, and never had an opportunity of laying my claims before them. If the decision of this Military Board had ever received the unconditional and unreserved approbation of the Court of Directors, the Circumstances of my absence from Calcutta, and of their want of information with respect to my claim, rendered their proceedings and decisions altogether irregular, and in the highest degree objectionable, and left me open a door for remonstrance and redress. But the approbation of the Court of Directors was not given without condition or reserve. They wisely and equitably provided a Clause against any mistake into which the Military Board might have fallen from want of sufficient information or otherwise. On this Clause I should undoubtedly have claim'd and recovered the Station from which they had excluded me during my absence on the list of Surgeons. But I had no occasion, for the Supreme Council perceiving the Justice of my Claim, and anticipating the provision that was made for it, in the orders of the Court of Directors, put me in possession of my proper rank immediately upon my return to Bengal, and it is that rank which I now enjoy

4th—Great stress has been laid on the case of Mr. Craigie. It is called by the author of the Remonstrance a case exactly parallel to mine, and is proposed as a rule for ascertaining my proper rank on the List of Surgeons

On a former occasion I took the Liberty of laying before your Hon'ble Board Certificates of three different Commissions from the Company. By the first I was appointed an Assistant Surgeon in November 1768, by the Hon'ble Court of Directors, by the second my rank on this Establishment was fixed, and confirmed in July 1769 by the Hon'ble Harry Verelst, Esq., and Council, and by the third I was promoted to the rank of Full Surgeon in August 1777 by the Supreme Council, in Conformity with the Custom of the Service, and with the resolution of the Court of Directors upon the proceedings of the Military Board, who sat to adjust the rank of the Medical Line. In short, I hold my present rank

* Word difficult to make out (drop?)—D G C

* Dr. Gilchrist—D G, C

by every Right and Form which the nature of the case can possibly admit or require

If Mr Craigie, therefore, possesses a claim that is exactly parallel to mine, and does not enjoy the corresponding rank to which he is by that claim entitled, it follows by a conclusion which is obvious and unavoidable that Mr Craigie has suffered an injustice, and it is much more consistent with Justice to re-establish Mr Craigie in his proper station, than to assume the injury which he had received as a rule or precedent for regrading me

On the other hand if Mr Craigie had aspired to promotion upon grounds that are not similar and corresponding to mine, the two cases are not parallel, and the resolution of the Military Board to reject his claim, cannot be applied as a proper rule for determining my rank

Your Hon'ble Board will now be surprised to learn after all this outcry about supersession and hardship, that at this moment I possess no higher rank than that which was originally given me by the Hon'ble Court of Directors, and that the Authors of this Remonstrance enjoy the very rank that was originally confer'd upon them by their first Commissions in the Service

Long before any of these Gentlemen had reached Bengal, and before their names were heard of in this country, I had established a character in my Profession by the Success of my practice I have supported that character for the space of seventeen years and have raised it higher, and I have been promoted agreeably to the dates of my different Commissions, to the Custom of the Service, and to the Clause contained in the conditional approbation given by the Court of Directors to the proceedings of the Military Board Above all, I am confirmed in the possession of my present Rank by the late Act of Parliament, and I trust that the Justice of your Hon'ble Board will find in my character and conduct no occasion sufficiently urgent to require a deviation from that rule

I have the honour to be, &c,
(Sd) "FRANCIS BALFOUR,"

Benares, 15th August, 1786

It may be of interest to give the opinions of the Medical Board on Balfour's case These opinions are contained in the Board's proceedings of 28th September 1786, and are somewhat mixed

James Ellis, the senior member, considers that Balfour did not resign his commission as Assistant-Surgeon, and that he is entitled to his original place in the list, by the orders of Council of 14th September 1778

The second member, Andrew Williams, states that he considers that Balfour has no claim to his original rank, nor to rank in the Medical Department from any date prior to 14th September 1778, and that Munro and Boyd have established their claim to rank above him

John Fleming, the third member, is of opinion that Balfour left the Medical Department when he became an Ensign, and that his restoration in 1778 to his original place was an act of injustice to Munro and Boyd, and to all the other men who had entered as Assistant-Surgeons before 1778 At the same time, he considers that the Council, when they restored Balfour to his original place, must have had good reasons for doing so, that they then pledged the public faith to Balfour, and that the question cannot now be reopened

The decision of Government was in favour of Balfour

The only evidence that I have ever come across that it was *customary* for men to serve as combatant and medical officers at the same time is contained in first, Balfour's statement in the above letter that "it was customary in the service for an Assistant-Surgeon to hold likewise a Subaltern's commission, and he was allowed to retain both until he arrived at the rank either of a Full Surgeon or a Captain", and, secondly, a letter from Lieutenant Thomas Staunton, contained in the Medical Board's proceedings of 24th May 1787, which runs as follows —

Proceedings, Medical Board, 24th May, 1787 Letter from Thomas Hamilton Head Surgeon, Fatty Ghurr, forwarding an application from Thomas Staunton, Lieutenant, to act as Regimental Surgeon's Mate

"To Thomas Hamilton, Esquire, Senior Surgeon at the Hospital, Fatty Ghurr Sir—Having been bred a Surgeon and having served with the Sepoy Corps of the 1st and 3rd Brigades from October, 1781 to the date of the General Order in 1783 by which Gentlemen serving in both the Military and Medical lines, were desired to relinquish one or the other, I am induced to offer my services as Regimental Mate to the 8th Battalion of Sepoys to which I belong, and which I request you to submit to the Medical Board, that if they approve, I may be favored by their recommendation to His Excellency the Commander-in-Chief to carry my appointment thereto into effect Any monthly allowance that may be ordered for me to receive, I will gladly accept"

I am, &c,
THO STAUNTON,
Lieutenant,
Fatty Ghurr, 11th May, 1787.

The answer to this letter was given at the same meeting, and was to the effect that as the Board had no power to comply with Lieut Staunton's request, he must apply to the Governor-General He does not appear to have rejoined the Medical Department, but continued to serve as a combatant officer (Cadet 1781, Ensign 11th July 1782, Lieutenant 8th January 1785), becoming Captain on 17th July 1801, and dying at Fatty Ghurr (Fatehgarh) on 21st November 1805

On the other hand, it seems evident that, if the practice of holding double rank, military and medical, were common and customary, Balfour's acceptance of promotion in the medical line would have been recognised as being in the ordinary course of events, and would not have elicited complaints of supersession from his juniors, nor would the Medical Board have been so divided in opinion in the matter

The oldest list of the Bengal Medical Service which I have seen is one dated 30th May 1774, preserved in the Calcutta Record Office, in manuscript In this list Andrew Cranston's name stands fifth among the Assistant-Surgeons, with the remark opposite to it "is an officer likewise" Had it been customary, or even common, for medical officers to hold the double rank, it is not likely that such a remark would

have been entered opposite the name of one Assistant-Surgeon, and of one only.

In this list Balfour's name is omitted altogether, which seems to me to shew pretty clearly that, at that time, he was supposed to have quitted the Medical Department permanently.

I have not been able to find any trace of the General Order issued in 1783, directing that officers doing the double duties should relinquish one or the other, which is mentioned in Staunton's letter above.

I have not come across any other reference to the case of Mr Craigie, mentioned in Balfour's letter. The officer referred to appears to be John Craigie, who entered the service as Assistant-Surgeon on 20th April 1772, became Surgeon on 21st February 1780, and died on board the *Haughton*, on his way home, on 10th February 1795.

Captain Frederick Breton, referred to in Balfour's letter, is shewn in Dodwell and Miles' Army List as having entered the Bengal Army as an Infantry Cadet in 1770. He became Ensign, on 22nd December 1772, Lieutenant 25th March 1777, Captain, 23rd March 1781, and resigned in December 1790. I know of no other reference to his having been a medical man.

Andrew Cranston, who, as well as Balfour, undoubtedly held a combatant commission, in addition to his medical warrant, entered as Assistant-Surgeon in October 1769, received a commission as Ensign on 5th October 1769, became Lieutenant on 28th March 1773, and died at Barhampton on 5th September 1776. In his case, therefore, the question of promotion never arose.

The only other case I know in which a medical officer certainly held combatant and medical rank at the same time is that of James Land, who entered the service on 7th April 1780, became Surgeon on 2nd May 1790, retired 27th May 1801, and died on 6th January 1816. In the Hastings papers^a a list is given, on page 802, of the Europeans present at Benares, at the time of Chait Singh's rebellion, in August 1781. This list included "Mr Totty, Surgeon to the Residency," and, among the Military Officers on active service, "Surgeon and Ensign Land."

Mr Land held his combatant commission up to 23rd July 1789, ten years later than Balfour or Cranston, and, as Assistant-Surgeons received commissions in 1788, he may truly be said to have held a "double commission." The Proceedings of the Medical Board of 3rd August 1789 contain the following notification—

G O of 23rd July 1789. "Mr James Land, whose name stands in the list of the army as a Lieutenant, and on the medical list as an Assistant-Surgeon, having been required to make his

election of either line, and having in consequence declared his preference for the Medical Department, his name is to be struck out of the list of the army" (Signed) Peter Murray, Adjutant General.

It will be seen that, if any order was really issued in 1783, that officers holding double rank, military and medical, should resign one or the other, Land in some way or other evaded it.

Several officers have been, from time to time, transferred from the combatant to the medical branch of the army, or *vice versa*. It is possible that some of these officers, in the earlier cases, did double duty at the same time, or held double commissions simultaneously, but I know of nothing to shew that any of them did so.

In a previous paper¹ I have mentioned the case of *Archibald Kerr*, Surgeon of the *Dalaware* Indiaman, who accompanied the force under Major Kirkpatrick from Madras to Fulta, after the capture of Calcutta in 1756. While at Fulta, he acted as Secretary to the Council. When the *Dalaware* was ordered home he accepted a commission as Lieutenant, and shortly afterwards was appointed Quartermaster to the force. In 1758 he had risen to the rank of Captain, and was one of eight Captains who resigned their commissions because they were superseded by a Bombay officer, Captain Govin. When he left the army he went home, but afterwards returned to India as a free merchant, settled at Patna, and engaged in transactions in salt, the manufacture of which he greatly improved. At the time of the officers' mutiny in 1766 he rejoined the army as a Captain in Sir Robert Barker's Brigade at Patna, but when matters were peaceably settled a few months later, he again resigned.

Moses Crawford is mentioned in Broome's "History of the Bengal Army," p 615, as having been a Surgeon's assistant before he received a combatant commission as Ensign in May 1766. He became Lieutenant 30th August 1767, Captain 28th November 1772, Major 27th January 1781, resigned 14th October 1782, and died in Scotland in 1794. In the Hastings' papers (p 779) he is mentioned as commanding two battalions, with which he came to Hastings' assistance at the time of Chait Singh's rebellion.

Lieutenant-Colonel *Peter MacGregor Murray*, Adjutant-General of the Bengal Army, was killed on board the Indiaman *Lord Nelson*, when she was taken by the French privateer *Bellone*, near Ferrol, on 14th August 1803. An account of the action will be found in the *Gentleman's Magazine* for 1803, Vol II, September, p 884. In this account it is stated that Colonel Murray went out to India as a Surgeon's mate about 1773, and soon after landing received a combatant commission, also that he was returning with a fortune of £200,000. I know of no other reference to Colonel Murray's having begun life as a doctor,

^a "Selections from the letters, Despatches, and other State papers preserved in the Foreign Department of the Government of India, 1772-1785." Edited by G. W. Forrest, B.A. In three volumes, Calcutta. Printed by the Superintendent of Government Printing, India, 1890.

¹ "Preservice Surgeons," *Indian Medical Gazette*, Vol. XXXVII, Nos. 1 and 2, January and February 1902.

and, as he entered the Bengal Army as a Cadet in 1771, he cannot have come to India as a Surgeon's mate in 1773, though it is possible that he may have done so at an earlier date. Dodwell and Miles' Army List gives the dates of his commissions as Cadet 1771, Ensign, 9th March 1773, Lieutenant, 27th March 1778, Captain, 18th October 1781, Major, 30th October 1797, Lieutenant-Colonel, 21st May 1800.

Robert Anderson states, in a letter to the Medical Board about his rank, dated 21st June 1786, that he had practised as a medical man for over 13 years, before he became a combatant officer. He was appointed a Cadet of Infantry in 1781, and became Ensign on 29th September of the same year. Before the end of the year he was appointed to do duty as an Assistant-Surgeon, and granted a warrant as such by the Indian Council from 2nd January 1782. His letter, which is contained in the proceedings of the Medical Board of 7th August 1786, is as follows —

"To the Hon'ble John Macpherson, Esq, Governor-General, and Supreme Council

Hon'ble Sir and Sirs,—

I respectfully beg leave to represent to your Hon'ble Board that I was an Ensign on the Establishment in 1781, and doing duty as such with the first European Regiment in Fort William. There being no Surgeon with the said Regiment and the Commander-in-Chief being informed that I had regularly studied and practised that Profession for upwards of 13 years he was pleased to order me to act as an Assistant Surgeon and after acting for some months I applied to be appointed an Assistant Surgeon and to resign my Commission as an officer. The Hon'ble Board was pleased to grant me a warrant dated the 2nd January, 1782. But by the order of the Hon'ble the Court of Directors I was included in the list of Gentlemen they ordered to be discharged the Service. I further beg leave to inform you that I was readmitted to the Service by the Resolution of your Hon'ble Board in September last, but with the loss of Rank. I flatter myself you will be pleased to take the peculiarity of my case into your consideration and have to hope the causes of my resignation of my Commission will weigh with you Gentlemen, in admitting my claim to rank in the Service from the 2nd January, 1782 and above all appointments that have taken place posterior to that period in the line of Assistant Surgeons. I beg your excuse for thus trespassing on your Hon'ble Board and have the honour to be," &c

(Signed) ROBERT ANDERSON,

CAMP NEAR CHUNAR,
21st June, 1786

Assistant Surgeon

It will be noticed that Anderson distinctly states that he applied to be confirmed as Assistant-Surgeon, and to resign his commission as an officer, in 1782. If it had been common or customary for officers to hold double rank, there would have been no necessity for him to resign his Ensign's commission.

A second memorial from Anderson, in the proceedings of the Medical Board of 15th February 1787, states that he was discharged from 15th November 1784, and reinstated in October 1785.

There is great confusion in the dates of appointment of the Assistant-Surgeons who

joined the service from 1781 to 1785. The Indian Government, being in want of medical officers, appointed a large number of Assistant-Surgeons locally in 1782-83, at the same time applying to the Directors at home for more medical officers. In a letter from Court, dated 16th March 1784,⁸ the Directors notified their intention of appointing twenty-six Assistant-Surgeons, and sent out the names of 22 men, who had actually been appointed and ordered to join. At the same time they disallowed the appointment of 24 Assistant-Surgeons, made locally in 1782-83. Only twenty-three names, however, are actually given in the list, of these Robert Anderson's name stands second. These officers, the Court ordered, were to be discharged from the service, but might remain in India, supporting themselves in the meantime by the practice of their profession, or in any other way they could, and might be taken on to the Establishment, as vacancies occurred, junior to all the men just appointed from home. A second letter from Court, dated 21st September 1785, contained in the proceedings of the Calcutta Medical Board, second Meeting, 6th June 1786, modified the above orders by directing that such of the locally-appointed Assistant-Surgeons as had been on actual service with troops during the war⁹ might receive Lieutenant's pay and half batta till permanently re-appointed.

Confusion was worse confounded by the fact that a number of other Assistant-Surgeons had been locally appointed by the Indian Council, junior to those whose removal had been ordered by the Court in their letter of 16th March 1784. These temporarily fortunate men now found themselves senior both to those who had been locally appointed at an earlier date, whose removal had been ordered, and also to those who had been appointed from England. Both batches of men, naturally, made bitter complaints of this supersession. In an order in the *Calcutta Gazette* of 10th July 1788, the Governor-General in Council directs that the Court's orders must be carried out in spirit, not in letter only, and that *all* the locally appointed Assistant-Surgeons must be ranked junior to those sent out from home, ranking among themselves from the date of their first appointments.

The proceedings of Medical Board, during its first years, teem with complaints, remonstrances, and memorials from Assistant-Surgeons, complaining of supersession by others. These disputes about rank and precedence were not finally settled until 1798, when they had been going on for over fifteen years. In a General Letter from Court, dated 5th July 1797, published in the *Calcutta Gazette* of 1st March 1798, the Directors finally settled the order in which

⁸ *Calcutta Gazette*, 16th September, 1784.

⁹ The first Maratha War, second Mysore War, and the Campaign against the Raja of Benares.

the medical officers appointed from 1781 to 1784 should rank. This letter gives a list of all the men of these years, who were still serving, in order. In this list Robert Anderson's name stands near the top, senior to many of the 26 men appointed from home in 1784.

Anderson never rose above the rank of Assistant-Surgeon. He gave up promotion in order to retain the Civil Surgency of Jessore, and died at that station on 11th April 1810. Few men would nowadays be willing to resign their claims to promotion, in order to remain for the rest of their days at Jessore. But a century ago, when the district was full of indigo planters, who probably afforded a large and lucrative practice, and when the town was more healthy, the river not having silted up, as it has now, Jessore was a pleasant and a popular station. Moreover, in the days when all travelling was by road or by country boat, Jessore, not far from Calcutta, was in touch with civilisation. It is curious, by the way, that both the historic outburst of cholera in 1817, and the great epidemic fever of Bengal, were supposed to have originated in Jessore. But these were long after Anderson's time.

Robert Withersone was appointed Assistant-Surgeon on 1st July 1774, and after four years' service in the Medical Department, became a Cadet of Infantry in 1778, Ensign in the same year, Lieutenant, 14th February 1779, Captain, 1st June 1796, Major, 8th January 1801, and Lieutenant-Colonel, 30th September 1803, he died on 7th May 1806.

John Stark also joined the Medical Department in 1774. He became an Artillery Cadet in 1778, Ensign on 18th September 1778, First Lieutenant, on 16th September 1779. *Dodwell* and *Miles'* Army List gives no further information about him, except "not to be traced."

John Taylor or *Tailour* was appointed Assistant-Surgeon on 10th April 1780, became Second Lieutenant of Infantry on 25th February 1781, Lieutenant on 1st October 1781, and died in Calcutta on 1st December 1791. In the India Office M. S. Records he is stated to have acted again as Surgeon on Field Service in 1786. *Dodwell* and *Miles* spell his name *Taylor* in the Medical List, *Tailour* in the Infantry List. The India Office records spell it *Tailour*.

James Denny, like Anderson, left the combatant for the medical line. He was appointed Cadet of Infantry in 1783, Second Lieutenant on 21st February 1785, and transferred to the Medical Department as Assistant-Surgeon on 11th July 1789.

The proceedings of the Calcutta Medical Board of 9th July 1789 contain the following letter—

Letter from the Assistant-Secretary to Government, dated Council Chamber, 1st July 1789, to the Secretary, Hospital Board. Sir—Ensign *Denny* having made an application to the Governor-General in Council to be removed into the medical line, I am directed to submit to

you the enclosed certificates from the Master, Waidens, and the rest of the Court of Examiners of the Company of Surgeons in London, which he has produced, and to desire that the Hospital Board will report, whether *Mr Denny* is thereby qualified to be an Assistant-Surgeon on this establishment." Signed *J Fombelle*, Sub-Secretary.

Denny was duly reported qualified. Unfortunately his certificates are not further mentioned in the records. The Board's proceedings of 24th July 1789 contain the following further notice about him.

G. O. 15th July 1789. "Resolved that *Mr James Denny* be appointed an Assistant-Surgeon upon this establishment until the pleasure of the Honourable Court of Directors shall be known."

"*Mr James Denny*, admitted as an Assistant-Surgeon upon this establishment, by minute of Council of the Military Department of the 10th instant, being a Supernumerary Ensign, his name is to be continued on the List of the Army until the pleasure of the Court of Directors shall be known, respecting the above-mentioned appointment, but he is not to be permitted to draw any pay or allowance whatever in his military capacity."

"*Mr Denny* is appointed to do duty at the Hospital at *Chunar*."

Denny was confirmed as Assistant-Surgeon, he became Surgeon on 5th July 1805, retired 7th October 1818, and died in London on 9th March 1830.

He may certainly be said to have held a double commission for a short time, but obviously his so doing was only temporary, and for a special purpose, that he might not be permanently struck off the list of combatant officers, until permanently confirmed in the Medical Department. It is clear that he was not doing the double duties at the same time.

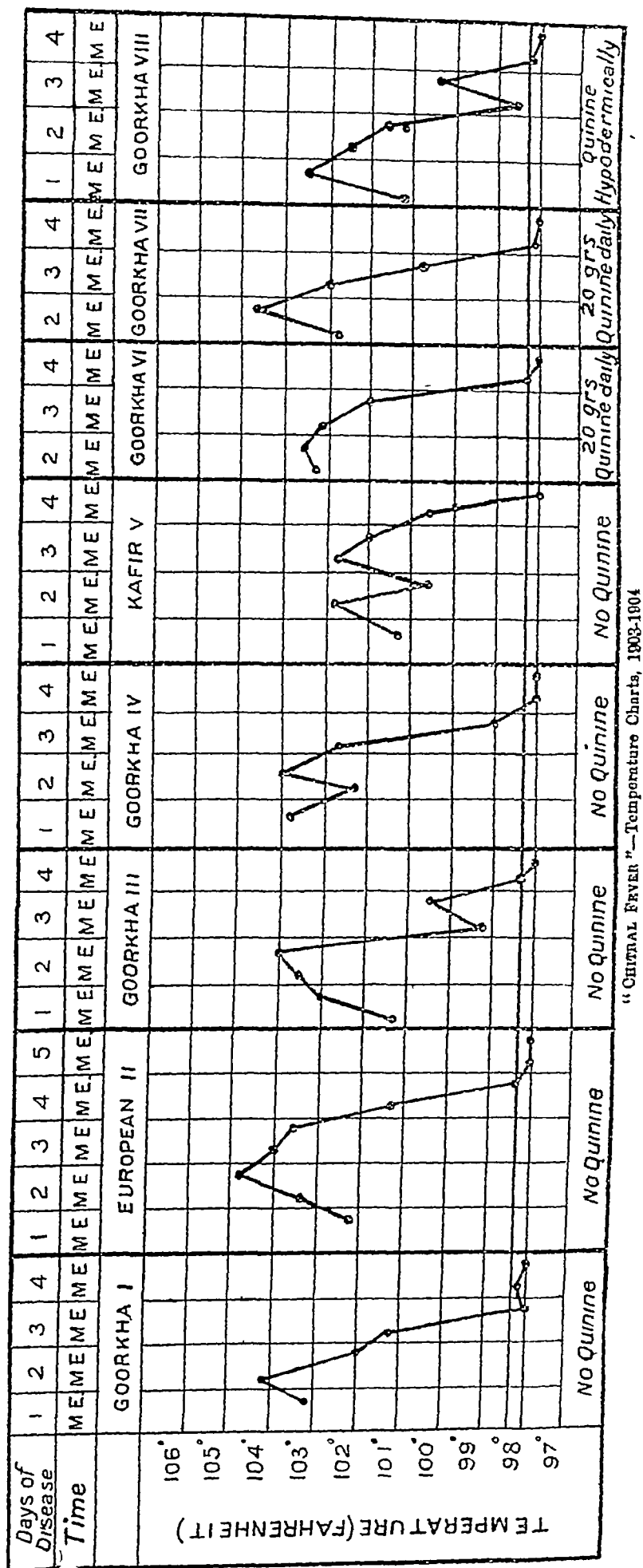
Gilbert Briggs of the Madras Army, also followed the same course. He was appointed a Cadet of Infantry in 1795, became second Lieutenant on 21st March 1796, and Lieutenant on 29th November 1797. He was appointed Assistant-Surgeon on 1st January 1797, but was not finally struck off the Infantry List until 17th December 1799, so he also held a double commission for nearly three years, probably under the same conditions as *Denny*. He became Surgeon on 29th March 1805, and died at Madras on 4th November 1820. He is the only man, of whom I have found any trace, in either the Madras or Bombay Armies, who served both as a combatant and a medical officer.

William Turnbull, a Lieutenant in the *Champan Light Infantry*, a local corps, was appointed to officiate as an Assistant-Surgeon, in the *Calcutta Gazette* of 21st June 1819. He was struck off, with other temporary men, from 31st October 1820.

The latest instance of the kind which I know is that of *Hugh Mackenzie*, who joined the 57th

BY CAPTAIN R MCCARRISON, M.B., B.Ch., R.V.I., M.S., General Surgeon, Gulgu

CHART V

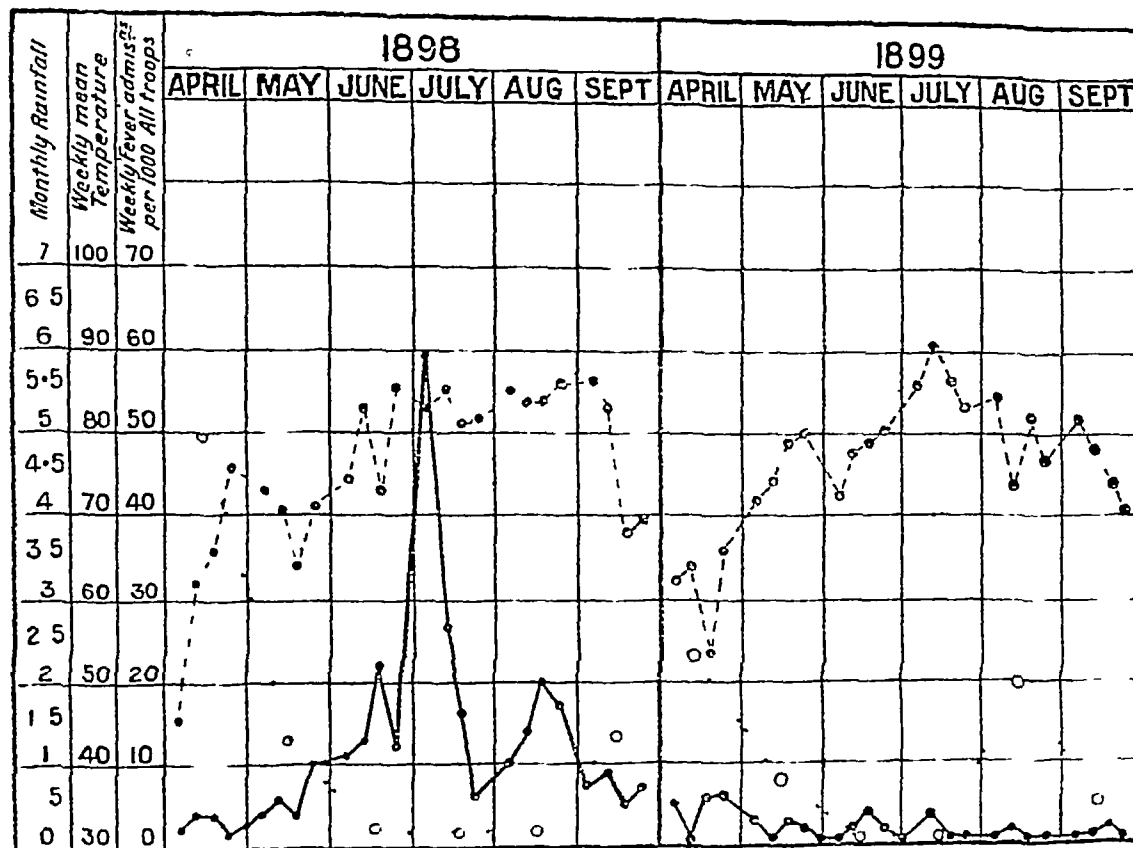


"THE THREE DAYS FEVER OF CHITRAL"

A CONTRIBUTION TO THE STUDY OF THE UNCLASSIFIED FEVER OF INDIA

BY CAPTAIN R MCCARRISON, M.B., B.Ch., R.U.I., I.M.S., Agency Surgeon, Gilgit

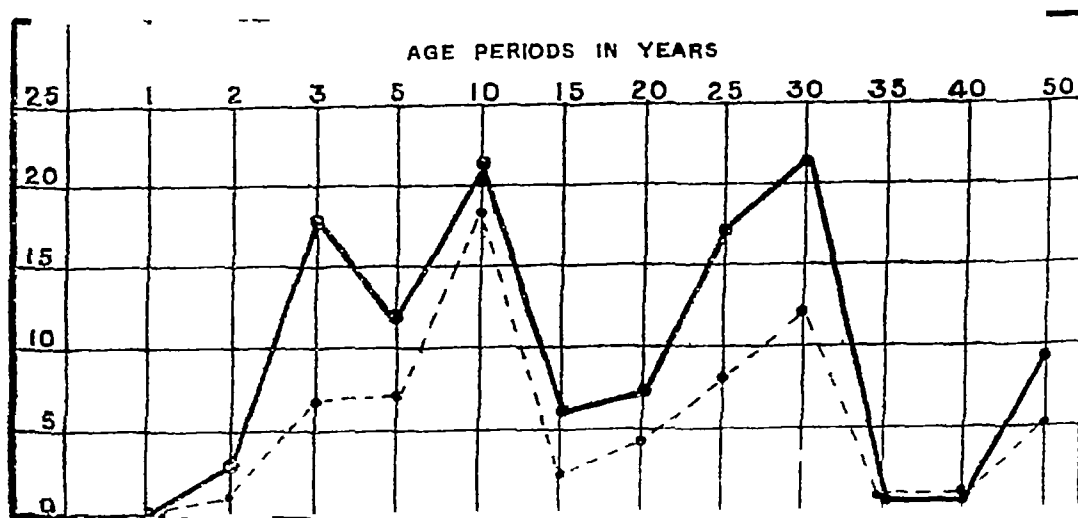
CHART III.



Admissions weekly into } ——— Mean Temperature - - - -
Field Hospital } Monthly Rainfall

"CHITRAL FEVER"—Charts illustrating the production of Immunity

CHART IV



Actual figures - - - - Percentages ———

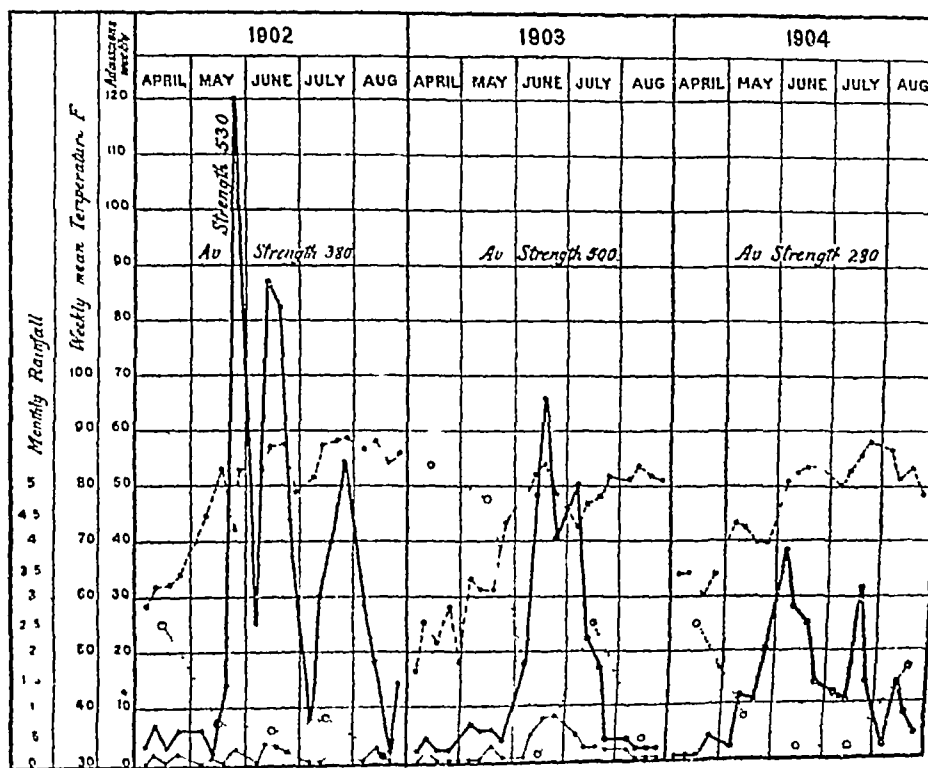
"CHITRAL FEVER."—Chart showing Spleen Index of Malaria in villages around Dosh Children examined 263
Adults examined 207 Untreated cases 1

“THE THREE DAYS FEVER OF CHITRAL”

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BY CAPTAIN R McCARRISON, M.B., B.Ch., R.U.I., I.M.S., *Agency Surgeon, Gilgit*

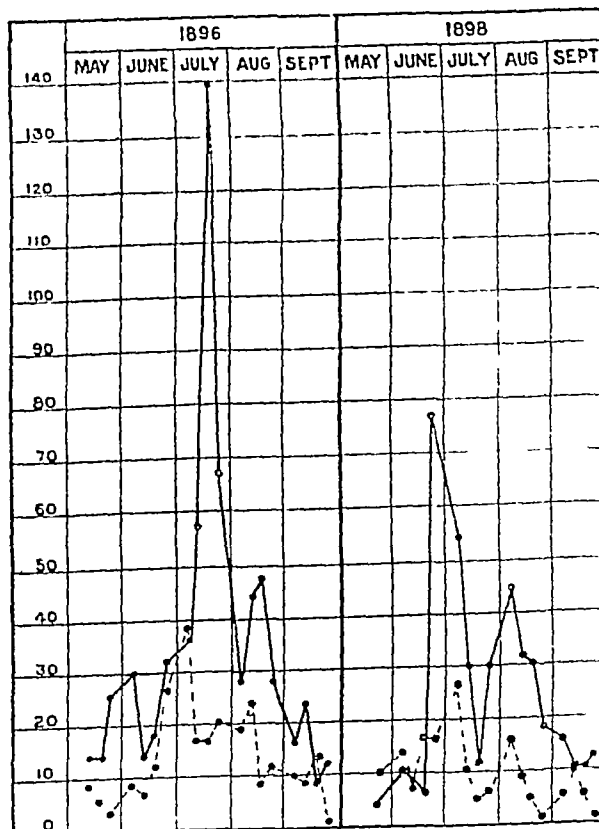
CHART I



Goorkha admissions ——— Rainfall
 Temperature ——— Admissions Followers (Hindustanis) ———

“CHITRAL FEVER” Showing admissions at Drosh, seasonal prevalence and relation to temperature and rainfall

CHART II



Goorkhas ——— hindustanis - - - - -

“CHITRAL FEVER” RACIAL CHARTS Showing admissions per 1000

Foot as an Ensign on 24th February 1813, and became Lieutenant on 25th February 1814. He was subsequently appointed Lieutenant in the Lanarkshire Militia on 5th July 1820, joined the Bengal Medical Service as Assistant-Surgeon on 15th January 1829, being then 37 years of age, and died in Aikan on 24th December 1831. He took the degree of M.D., Glasgow, in 1823.

A few similar cases have occurred in the British Army. Sir James McGiegor, Director-General of the Army Medical Department, in his Autobiography, page 204, speaking of the staff of the Duke of Kent, at Winchester, in 1808, says "His Adjutant, Major, afterwards General, Foster, entered the army as a Medical Officer, and had attained the rank of apothecary to the forces when he entered the Military Service."

Inspector-General John Jackson, of the A.M.D., entered the 71st Foot as an Ensign in 1778, doing duty also as Hospital mate, after qualifying at Edinburgh. He retained his Ensign's Commission in the 71st for fifteen years, up to 1793, when he was placed on half pay, as Surgeon to the Buffs.¹⁰ In 1807 General Simcox was nominated as Commander-in-Chief in India, and appointed Dr. Jackson his Military Secretary, "a rare, if not a solitary instance, of the selection in the Royal Army of a Medical officer to such a situation."¹¹ Jackson accepted the appointment, but General Simcox died before joining. So it fell through.

"THE THREE DAYS FEVER OF CHITRAL"* A CONTRIBUTION TO THE STUDY OF THE UNCLASSIFIED FEVERS OF INDIA

BY R. MCCARRISON, M.B., B.Ch., R.U.I.,
CAPTAIN, I.M.S.

Agency Surgeon, Gilgit

THE following account is the result of observations made in Chitral during the years 1903-4.

This disease has prevailed yearly among the troops since our occupation of Chitral in 1895. Chart I represents, graphically, the extent of that prevalence during the past three years.

The disease has, up to the year 1903, been returned officially as "ague," but it is one of the chief purposes of this communication to demonstrate its non-malarial nature. The disease is known locally as "Chitral Fever."

¹⁰ "A view of the Formation, Discipline, and Economy of Armies. By the late Robert Jackson, M.D., Inspector-General of Army Hospitals. The third edition, revised, with a memoir of his life and services, drawn up from his own papers, and the communications of his survivors." London, Parker, Funnell, and Parker Military Library, Whitehall, 1845. (The memoir was written by Randal Martin and John Grant, of the Bengal Medical Service), p. xlii.

¹¹ *Idem*, p. lxxvii.
* For the name of this yet unclassified fever I am indebted to a suggestion of Sir Patrick Manson. R. M'C.

DEFINITION

"Chitral Fever" is an acute, infectious disease, epidemic in the Chitral Valley during the summer months, and characterized by a single paroxysm of fever of typical course, which persists for about three days, without marked local affection. The paroxysm is accompanied by severe headache, pains in the back, bones, joints and muscles, and is followed by severe prostration, which continues for ten days, or more, after the attack.

PREVALENCE IN CHITRALIS

Among the native population of Chitral, the disease occurs yearly, during the mulberry season (end of April to July). It affects only the younger members of the community and new comers to the country. It is rare that children have more than one attack. The Chitralis ascribe the disease to the eating of mulberries and believe that it is only contracted by those who sleep indoors during the mulberry season. They recognise it as distinct from the Grape season fever, which is true malaria, the latter gives evidence of its approach in the shape of a smart rigor, whilst Chitral Fever attacks them stealthily (*phik-bi-ti*).

Malaria is not common in Chitral, as is evidenced by the spleen index of this disease (Chart IV).

DISTRIBUTION

The disease is confined to the Chitral Valley. It occurs as far north as Reshun (6,480 feet). It does not, so far as I have been able to discover, exist at higher altitudes.

ETIOLOGY

The virus of the disease is unknown. The following facts have been arrived at in the course of my study—

(1). It cannot be produced, in presumably non-immunes, by the subcutaneous, or intravenous injection of blood, taken from a patient at the height of the fever. This experiment was carried out in seven cases. The men, who submitted to the operation, were all natives of the plains of India. It will be pointed out later, however, that Hindustanis are relatively immune, and that this immunity is possibly acquired. In five cases, 2 ccs of blood were injected subcutaneously. No reaction occurred, except in one doubtful case, when, on the fifth day after the operation, without symptoms of any kind being present, the temperature rose to 98.8° F. In two cases, 2 ccs of blood were injected into the Median Basilic vein, without reaction in either case, within the known incubation limits of the disease. These seven individuals, although afterwards exposed to infection for two months or more, did not contract the disease.

(2). There would appear to be no organism of a bacterial nature present in the blood stream. I could not, after a large number of cultural

experiments, detect any such organism in broth, or agar tubes, inoculated with blood taken at the height of the fever, or just as it was beginning to decline, and incubated at room temperature (75° to 85° F)

There are, however, present in all cases of this disease, in fresh blood taken from the Median Basilic vein, minute, actively motile granules. These bodies are not readily observed until a few minutes after the specimen has been prepared, when they are seen in large numbers. They are very motile and highly refractive. In shape, they are spherical or oblong, one and the same organism appearing at one time spherical, at another oblong, owing to its altered position in the fluid in which it is seen. They occur singly or in pairs. Not infrequently, one of the pair is seen to be smaller than the other. They resemble very closely motile cocci. In size, they vary considerably. They appear to be smaller than the typhoid bacillus, with which they were compared, for the purpose of arriving at an estimate of their size. The movements of these bodies are then most characteristic feature, they suggest the presence of a terminal flagellum, but the latter appendage was never observed, under a magnification of 1,000 diameters. They move, in and out, among the red blood corpuscles and under them, but have never been observed to enter them. They are not taken up by leucocytes. They dart hither and thither among the corpuscles, often turning and twisting, not infrequently a rapid rotation is observed. A rolling movement is sometimes seen, and, when in pairs, one will, owing to this action, be on top of the other. The movements of pairs are slower than those of single bodies. Their appearance in pairs, with one often larger than the other, suggest budding or division, they seem to increase in numbers after the specimen is prepared. They are very numerous in specimens three hours old, and have been seen in active motion, 24 hours after the specimen was taken. They occur in large numbers at all stages of this fever, and have been observed 36 hours after pyrexia has ceased.

Bodies, indistinguishable from those described, were noted to occur in freshly drawn urine, but the possibility of contamination prevents my laying any stress on the fact.

All attempts to stain these granules have been invariably unsuccessful.

That these bodies are not bacteria, is shown by the results of culture and inoculation experiments. When blood from the Median Basilic vein was inoculated into broth tubes, no growth was observed to occur. The only result of the inoculation was the rapid formation of an albuminous coagulum of conical shape, with its base at the surface of the broth and its apex pointing to the bottom. When the tube was shaken up, this coagulum disappeared, and examination of the fluid, by the hanging drop

method, revealed the presence of bodies, indistinguishable from those described.

These granules are not peculiar to the disease. I have lately observed them in the blood of a patient suffering from relapsing fever, and, furthermore, they have been seen in the fresh blood of apparently healthy individuals, though not in anything like such numbers, in either of these instances, as in Chittal Fever.

It would be interesting to know whether these bodies bear any relationship to the minute granules found in blood, which are form-elements and are supposed to participate in the coagulation of blood⁽¹⁾

The granules, which I have here described, would appear to be identical with those noted by various observers as occurring in Typhus and other fevers.*

In this connection it is interesting to note, that Hunt found very mobile granules in the fresh blood of patients suffering from Dengue⁽²⁾

(3) The total number of leucocytes diminishes during an attack of this disease. This diminution may not be apparent, until the temperature begins to drop. During the decline of the fever, the number of leucocytes often falls as low as 4,000 per cu mm or even lower. 5,250 white blood corpuscles per cu mm were found to be the average obtained of 20 cases examined, as the fever was beginning to decline. The following is the average obtained from 33 differential counts made by Lieutenant F E Wilson, I.M.S. One thousand leucocytes were counted in each case —

Polymorphonuclears	61 7%
Lymphocytes	21 3%
Large mononuclears	14%
Eosinophiles	2 7%

Out of these 33 cases, the polymorphonuclears are diminished in 14 cases below 60%, in 3 cases below 50%, whilst in the remaining cases, they are within the normal limits. The mononuclears were increased, in 13 cases, above the average given, in two cases reaching as high as 21 and 22%.

(4) Neither the *Hæmamoeba* of malaria nor pigmented leucocytes are to be found in the blood stream. This observation is the result of the examination of a very large number of cases. Other Medical Officers have had a similar experience, and specimens sent to the Pasteur Institute, Kasauli, have, in 1902 and 1904, been pronounced free from malarial parasites.

(5) Spleen punctures were made in five cases. In only three of those cases, was enough material obtained to work with. The results of microscopical and cultural examination were negative, and not sufficiently encouraging to justify further examination by the procedure of spleen puncture.

* See Article on *Hæmocoena* by Dr Andrew Love, *Lancet*, December 24th, 1904. (11)

(6) Four cases, in which the urine was examined by cultural methods, gave negative results

(7) The disease cannot be conveyed from the sick to the healthy, and presumably non-immune, by smearing the pharyngeal secretion of the former on the throat of the latter. This was proved by experiment in six cases. The individuals who submitted themselves to this experiment were again natives of the plains of India, and for this reason I do not regard the results of the experiment as conclusive.

INCUBATION PERIOD

The incubation period lies between a few hours and five days, in rare cases, six days. The introduction of susceptible individuals from an immune area into Dosh, during an epidemic, was followed, after the lapse of five days, by a smart outbreak among the new comers. Under such circumstances, several cases have been noted to occur as early as 12 hours after arrival, and a few on the third and fourth days. It is not, however, until the fifth day that the men begin to suffer in large numbers.

DISEASE NOT CONTAGIOUS

It is the locality, not the disease which infects. Chitral Fever can only be acquired in an infected locality, and is incapable of development elsewhere. The disease ceases abruptly after the lapse of five days' (in rare cases six), in a body of susceptible individuals removed to an immune area. Cases of the disease continue to occur, among the new comers to the immune area, for five days, but the disease does not spread to the old residents of this area, although they may be most susceptible to it. I find this fact commented upon in the old hospital records. Relapses have occasionally occurred in immune localities.

HIGH ATMOSPHERIC TEMPERATURE REQUIRED

The disease requires a high atmospheric temperature for its development (see Charts I and III). It makes its appearance yearly when the mean external temperature rises above 75°F. It disappears with the arrival of the colder autumn and winter months. It would appear that the virus is capable of surviving the cold winter months. The nature of the disease, its specific character, together with the fact that the height of the fever prevalence is not, except as a coincidence, attained at the time of the highest atmospheric temperature, preclude the possibility that temperature *per se* could be the cause of the disease.

RAINFALL

Rainfall, unless it occurs in such quantities as to lower the atmospheric temperature markedly, and that for some time, is a factor of little or no importance. It occasionally does operate, indirectly, by delaying the commencement of an epidemic (compare Charts I for 1902, 1903, and

1904), but during its actual course the rainfall of *Chitral* has little or no effect.

COURSE OF EPIDEMIC

The course of the epidemic is that of a highly infectious disease. It has been found impossible to trace any sequence of cases amongst the individuals composing the Garrison, from the end of one epidemic to the beginning of the next. Among the civil population of *Chitral* such cases may occur, but they themselves affirm that the disease does not prevail amongst them during the winter.

Chitral Fever does not set in abruptly, a series of single cases introduces the epidemic. The disease was observed to be prevalent among the natives of the country, before it became epidemic among the Garrison in *Dosh* and *Chitral* (1904).

The epidemic exhausts itself gradually. (See Charts.) In 1903, the termination was abrupt. This may possibly have been due to the disinfection measures, which were undertaken shortly before its termination. Exacerbations, observed in the course of the epidemics of 1903 and 1904, were determined by the movements of the troops, the return of a susceptible body of men to the infected area being followed by an outbreak among the new comers.

SHORT EXPOSURE SUFFICIENT TO INFECT

A stay of only a few hours in an infected locality is sufficient in which to contract the disease. Men, marching from one immune locality through *Dosh* to another, acquired the disease, although in some cases their stay in *Dosh* was as short as two hours.

IMMUNITY

As a rule, one attack of Chitral Fever confers immunity. Out of 100 native children examined, where trustworthy histories could be obtained, three had the disease more than once, but in different epidemics, one, one year, one, two years, and one, three years after the first attack.

In the years 1898 and 1899, the Garrison in *Dosh* during the summer months was the same. In 1898 the *Gooncha* regiment suffered very severely, but in 1899 I find that "There was very little sickness in *Dosh*, very little fever" (old hospital record). Chart III will clearly illustrate this point.

In 1903, 16% of cases were relapses and second attacks, whilst 18% were third attacks. In 1904, second attacks occurred in 5% of all cases, third attacks in 1%. Seeing, therefore, that second and third attacks occur only in a relatively small proportion of all cases, and that they are almost invariably milder than the first, it appears evident that a degree of immunity is acquired, in the majority of cases, complete, in the minority, not sufficient to prevent the occurrence of a second, and in rare instances, of a third attack during one epidemic.

There is considerable evidence to show that the immunity, thus acquired in one epidemic, is sufficient to protect the individual in succeeding epidemics, and that for a period of some years, beyond which, however, my information does not extend

EUROPEANS AND GOORKHAS VERY SUSCEPTIBLE

Europeans and Goorkhas have proved themselves much more susceptible to the disease than other races, who have served in *Chitral*, a fact which I find commented on in the old Hospital records. The charts for 1896 and 1898 will illustrate the point. The conditions of life of these Goorkhas and the other races referred to in the charts were identical in the two years (Chart II)

Whilst of Hindustani new comers to *Chitral* only 7% acquired the disease in 1904—29% of all Goorkhas suffered. Later, it will be pointed out how individual differences occur as regards the severity of the attack. Among the Goorkhas, in 1904, afebrile or mild cases occurred in 5% of cases among Hindustanis, on the other hand, attacks of this nature occurred in 37.5% of cases. In the remaining 62.5% of cases among Hindustanis, the attack was as severe as with Europeans and Goorkhas. These facts, namely, the very much smaller percentage of cases among Hindustanis, together with the occurrence, in those, of a much larger percentage of afebrile or mild attacks, suggest that Hindustanis are, in the majority of cases, immune, some are partially so, the remainder, non-immune. Further, these facts suggest, that the immunity is not a natural, but an acquired, one, and leads up to the assumption that a disease, similar to that now under description, exists in *India*. I shall have occasion to return to this point, and to indicate that, in all probability, this assumption is correct. Among the various Hindustani races, no differences in the degree of susceptibility would appear to exist.

LENGTH OF RESIDENCE AND SUSCEPTIBILITY

Susceptibility to the disease would appear to be diminished by length of residence in the country. The number of susceptible individuals who have resided in *Chitral* for any length of time (apart from the natives of the country), is small, but evidence, derived from enquiry among these, points in this direction. Seeing, however, how largely the racial element of susceptibility enters into the question, it is difficult to speak with certainty.

DISEASE OF YOUNG PEOPLE

It has been observed how, among the natives of the country, young people are most affected. Among Europeans and Goorkhas, it is the young and vigorous soldier who suffers most. In 1903, 63% of those under 20 years of age suffered, and of those under 25 years, 53% suffered, and so, in a diminishing rate, among the older ranks.

The same is true of 1904. The vast majority of those affected were young soldiers of short service.

INSANITARY CONDITIONS

Insanitary conditions of life would appear to favour the spread of the disease, only, however, in the presence of those other conditions, which have been shown to be essential to that spread, namely, high temperature, the virus of disease, susceptible individuals, and certain unknown local conditions. In this connection the saying of the natives of *Chitral*, that "only those who sleep indoors during the mulberry season contract the disease," is interesting.

OTHER CAUSES

Among Goorkhas themselves, signallers suffered more largely than did the ordinary rank and file, due doubtless to their long hours of work in the sun. Those on guard duty, also, or sentry-go in the sun, with little or no protective head covering, not infrequently came to hospital from duty. Long marches, by day or night, were also injurious. I find that, during the earlier years of our occupation of *Chitral*, when the men went out fasting, in the early morning hours, to collect wood, and, when after their long climb up the hill-side, they arrived heated, and drank copiously of cold water, the disease occurred so largely among them as to lead to its being attributed to these causes, namely—exposure to sun, chills, fatigue, drinking of cold water on an empty stomach, etc., all of which are doubtless predisposing, or exciting, causes of the disease, but none of which can be regarded as the essential cause. It is interesting to note that, under these circumstances, the disease was almost always attended with symptoms of a catarrhal enteritis (Diary of the P. M. O. of the time).

VEHICLE OF INFECTION

As to the means by which the disease is spread, from a study of the local conditions which prevail in *Chitral*, there would appear to be two possibilities, namely,—soil infection and suctorial insects. The good results which followed, in 1903 and 1904, the practice of the ordinary disinfection measures, which are applicable to all infectious diseases, seem to indicate a soil or house infection. These results appear to me to justify the assumption that the germ of the disease may possibly be conveyed in dust. The high percentage (67%) of cases, in which an inflammatory condition of the throat occurs, is also suggestive.

With regard to suctorial insects, sand-flies are those most likely to be implicated.

Their appearance corresponds, in a most striking way, with the appearance of the disease, and the fact that they are not found where the disease does not prevail, may be more than a coincidence. Experiments, in my hands, have, however, failed to throw any light on this point. The very great difficulties experienced in

working with sand-flies, may be, in part, responsible for this lack of result

SYMPTOMATOLOGY

The onset of 'Chitral Fever' is as a rule sudden, not infrequently markedly so. Occasionally, prodromal symptoms are present for one or two days before the actual onset of the paroxysm. These prodromata are—a general feeling of malaise, vague pains, or feelings of discomfort in the body generally, weariness and disinclination to exert oneself. In my own case, these were present twelve hours before the fever began. The onset may be attended by a slight rigor, or a feeling of chilliness, never, however, amounting to an actual shivering fit, comparable to that of an ague. A severe frontal headache is, as a rule, the first evidence of the indisposition, a dull lumbar ache soon makes itself evident, and the whole body rapidly becomes racked with pain. The conjunctivæ usually become injected, and a slight malai flush may be present. The skin is dry and hot, but later it may be moistened by evanescent sweatings. No rash appears, the flushing of the face, which occurs, cannot be called such. The temperature rises rapidly and with it the pulse rate becomes increased. Within 24 to 36 hours, the temperature has reached its height, not infrequently touching 104° , and, in rare cases, 105°F , but, as a rule, just falling short of the former figure (See temperature Charts). The pulse exhibits all the usual phenomena of high fever, the average rate lies between 100 and 116. In several instances I have observed an unduly slow pulse rate, in one case, with a temperature of 100.8°F , the pulse rate was 50, whilst it is not uncommon to find a pulse rate of 80–90 with a temperature of 103° or 104°F . It is in this condition that the patient presents himself at hospital. If he has walked there, he has done so with difficulty, and in a "huddled up" attitude. He is unable, or rather, disinclined, owing to the loin pain, to straighten his back, and his knees are unusually bent from the pain, or feeling of weakness and insecurity which is present in the limbs. It is the usual experience of the Medical Officer to find, at the morning visit to Hospital, the verandah floor covered with "huddled up", groaning figures, in all positions of discomfort, and utterly prostrated by the attack. At this stage of the disease, and all through the course of the fever, the patient complains only of the severe frontal headache—indeed my own sufferings lead me to believe that "intense" would describe the headache more accurately than "severe"—and "the pains in the whole body". All other symptoms are to the sufferers of minor importance in comparison with these. The headache is confined to the frontal region and eyeballs, and is greatly exaggerated by the slightest movements of the head. Ordinary, everyday sounds become unbearable, a sparrow nesting

in the verandah, a dog barking, causes the patient the greatest annoyance. All movements of the eyeballs aggravate the pain therein, so that such movements of the head and eyes are as far as possible refrained from. Owing to the body pains, resting in one position for any length of time is attended with such discomfort, that frequent changes of position are necessary. These changes causing, as they do, an exaggeration of the patient's sufferings, are executed to the accompaniment of his peevish groans. Sleep, during the attack, is rendered impossible, or occurs so fitfully, that the sufferer dreads the long nights of pain. The patient is very irritable, he objects to being questioned, and resents examination, he is peevish to a degree, so that such symptoms as a pharyngeal catarrh, or a bronchitis, are apt to be overlooked, unless a systematic examination is made in all cases. The tongue is early coated with a white fur which later may become brownish, the tip and edges remaining red, not infrequently, transverse and longitudinal crackings occur. The bowels are constipated, but, occasionally, diarrhoea usually of a bilious character, occurs either at the onset of the fever or at the crisis. Diarrhoea was present in 8% of all cases this year. Vomiting is not uncommon, it occurred in 8% of cases, it is bilious in character. There is, as a rule, some gastric depression, burning pain in the stomach was complained of in 8% of cases this year*. The appetite is completely lost and the sense of taste distorted. The urine is diminished in quantity, colour not noticeably altered, acid in reaction, of normal specific gravity and containing no albumen. The lips and teeth are occasionally covered with sores. Herpes of the lips does not occur. If the throat and mouth are examined, then mucous membranes will be found to be congested as a rule.

With the rise in temperature, all the symptoms increase in severity. Hæmorrhage from the nose is frequent at this stage, and affords the patient manifest relief. The temperature usually remains elevated for 24 hours, or longer, during which time, slight remissions may occur. The symptoms do not begin to abate until the decline of the fever occurs.

These, then, are the symptoms of the disease which are obvious, almost at the first glance, and which are present in all cases, although it may be in varying degrees of severity. In addition, however, other symptoms occur, which would appear to give a certain degree of variation to different epidemics. It is recorded that, in 1898, abdominal symptoms were marked. These symptoms were pain in the umbilical region, burning sensation in epigastrium accompanied with thirst, looseness of the bowels or

* This figure is a coincidence in these three cases. Vomiting, diarrhoea and burning pain in the stomach are not as a rule observed together in one and the same case.

constipation, tongue red on tip and edges, dirty on dorsum. The symptoms pointed to a catarrhal enteritis. Indeed, so marked would these symptoms appear to have been, that some doubt seems to have existed, as to whether the enteritis was not the etiological factor in the disease. It is said in the record to which I refer, that "these symptoms were generally accompanied with fever, or they generally accompanied the fever. The first sign was generally fever" (Diary of P. M. O. of time). It is also pointed out how the fever, and, with it, the abdominal symptoms, disappeared when the troops moved out of the fort, but returned four days after they came back. The causes assigned were those to which I have already referred in the etiology of the affection, they would appear to be sufficient to explain the abdominal symptoms.

In 1904, I was struck with the frequent presence of cough, which was, in 67% of all cases, due to a pharyngeal catarrh, in 17% of cases to an attendant bronchitis. In 1903, I did not observe such a condition of affairs, but this I attribute to the fact, that every case was not systematically examined, as was done this year. Coryza is never present. The cough is at first a dry hack, later it is attended with the expectoration of a muco-purulent sputum. Examination reveals the presence, on the posterior wall of the pharynx, of a thick, tenacious, muco-purulent secretion, while erosions are occasionally observed. The tonsils are often enlarged and inflamed, and the uvula is occasionally observed to be elongated and congested. The soft palate, also, is sometimes noted to participate in this congestion, while gingivitis was present in 13% of cases. It is to be remembered, however, that a condition of chronic pharyngeal catarrh is, in the healthy Gorkha, not infrequently present, as the result of smoking, together with their preference for highly spiced foods.

Vertigo is frequently complained of. The liver and spleen are normal. The skin, which is dry and hot, may be occasionally moistened by evanescent sweats, it never exhibits a rash.

A certain degree of hyperæsthesia of the skin is not uncommonly present, whilst a burning sensation of the palms and soles is sometimes complained of.

The joint pains are usually confined to the larger joints, the knee and elbow. Sharp, shooting pains in the bones occur. A feeling, comparable to the tightening of a clamp on the shin bone, distressed me greatly, and persisted for some weeks after my recovery. Cramps in the calf muscles are not uncommon.

Within 36 to 48 hours, sometimes longer, after the onset of the fever, the temperature begins to decline and, as a rule, the fall takes place within 24 hours. A terminal remission or intermission, just before the temperature becomes normal, is common. There is frequently, at this stage, hæmorrhage from the nose, more rarely, diarrhoea, sweating, or vomiting. With the fall

in temperature, the symptoms abate. The headache and pains become less severe, and, as a rule, disappear after the temperature has reached normal, leaving, however, a distressing feeling of weakness, out of all proportion to the short duration of the attack.

CONVALESCENCE

With the fall of temperature to normal, apyrexia becomes complete and convalescence is established, there is no return of fever, no rash. Desquamation was reported to have occurred in two cases. I have not personally observed it. During convalescence, which is slow, lasting, as it does, ten days or more, the patient is greatly prostrated, and gains strength of body and mind but slowly, for the latter appears to suffer to an equal, and in those who are accustomed to intellectual exercises, to a greater extent than the former. Indeed, the inability to concentrate the thoughts on any subject, to write a letter (as one officer experienced, forgetting what he wished to say), to take up the ordinary intellectual pursuits of life with any zest, for fourteen days and often a month after the attack, is in the case of a European, perhaps the most distressing feature of the disease. The memory is found to have suffered, and there is a hesitancy in putting the right word in the right place, often resulting in actual error. I am informed by officers, who speak Khaskūia with fluency, that the Gorkha soldier has often complained to them of similar disorders. The appetite is slow to return, and, in the case of smokers, it is some time before any enjoyment is derived from tobacco. Not infrequently, some particular pain persists. The site of an old wound may ache for a considerable period after recovery. The pulse, during convalescence, is soft and slow.

COMPLICATIONS

Complications, with the exception of a terminal bronchitis, which occurred in 6% of cases, are few. In one case, phlebitis of the external jugular vein occurred during convalescence. If the sufferer has a weakness, the disease will find it out. Tubercular glands in the neck have become enlarged and tender, and a pulmonary tuberculosis followed. The subject of a gonorrheal 'rheumatism' has suffered from a severe acute attack of rheumatism, just as he recovered from the paroxysm of fever. Two cases of severe typhoid have rapidly followed on the heels of this affection, and caused the death of the sufferers, whilst two cases of pulmonary tuberculosis, in which no active signs had been present for some time, developed very acute symptoms, death resulting in one case.

SECOND AND THIRD ATTACKS

Second attacks occurred in 2% of all cases this year (1904) they are, as a rule, milder than the first attacks. If, however, the first attack

has been mild, as happened in Dosh this year, at the beginning of the epidemic, the second attack may be severer than the first, this is rare. In 1903, second attacks and relapses, taken together, occurred in 16% of cases. Third attacks are always mild. They occurred in 18% of cases in 1903, in 1% of cases in 1904.

VARIATIONS IN SEVERITY OF CASES

Cases of Chitral Fever vary, to some extent, in the degree of severity, although the observer cannot fail to notice the almost exact similarity of all cases of the disease. This year (1904), in Dosh, the cases were, on the whole, milder than in 1903. They were severer in Chitral than in Dosh. In a considerable number, the fever lasted only 48 hours, and in some, even less than this. Afebrile cases were observed, also, in which the headache and body pains were the only symptoms present.

MORTALITY

The mortality in Chitral Fever is *nil*. Whilst, however, the disease in itself is not a cause of death, it so lowers the bodily powers of resistance, that, for a considerable time after the actual attack, the patient is rendered less able to withstand the onset of graver diseases. The prognosis, therefore, is always favourable, in so far as the attack of the disease itself is concerned. It is necessary, however, to warn the patient of the feebleness of his bodily defences after an attack of the disease, and to remove him to an altitude, where these are not likely to be assailed.

DIAGNOSIS

(i) *Malaria*

Chitral Fever has hitherto been returned as malaria (ague or remittent fever). That the disease is not malarial in nature, will, I think, already have become apparent from the description of its etiological features and of its symptomatology.

The disease responds to none of the three great pathognomonic tests of malaria—

- (1) It is not periodical. It consists of a single paroxysm of fever followed by absolute apyrexia.
- (2) It is not influenced by quinine, either as a curative or prophylactic measure.
- (3) The malarial hæmamoeba is absent from the blood stream.

In addition, if further proof of its non-malarial nature were wanting, one, at least, of the two subsidiary tests of malaria is negative, and the other cannot be regarded as evidence.

- (4) Pigmented leucocytes are absent from the blood stream.
- (5) The mononuclear leucocytes, although undoubtedly increased, are not sufficiently constantly so, to be regarded as evidence of a malarial infection. It is

true that, in one-half of the cases in which blood counts have been made, the mononuclear increase has reached, or exceeded, the figure (15%) laid down by Stephens and Christophers (*) as strong evidence of a malarial infection, but, on the other hand, the remaining half have fallen below that figure. The test, then, affords neither positive nor negative evidence of a malarial infection in the case of this disease. Moreover, in view of the absence of response to the three great tests of malaria, were the mononuclear increase a constant one, it could hardly be regarded as strong evidence of a malarial infection, inasmuch as such an increase is not peculiar to this disease.

With regard to the question of administration of quinine in this disease, it will be observed that, if quinine is administered from the outset in all cases, a false idea is arrived at as to the influence of the drug. If quinine is withheld, it is found that the disease runs a precisely similar course and terminates in a precisely similar manner to those cases in which the drug has been administered. Last year (1903), I gave quinine by the mouth in 12 cases and in 12 cases by the hypodermic method with the result shown in these charts. Chitral Fever affords a striking example of the diagnostic utility of the rule, that, in all cases of fever, quinine should be withheld for the first few days of the attack, or until the diagnosis is established by modern methods of examination.

That the prophylactic use of quinine also is useless, is well brought out in the charts for 1902, 1903, and 1904. In the two former years this measure was enforced, but not in 1904. When, finally, it is remembered that one attack of the disease confers an immunity of considerable duration, in the great majority of cases, all question of the malarial nature of the affection must be abandoned.

(ii) *INFLUENZA*

From influenza—certain mild forms of which it would appear to resemble—this disease is distinguished by the facts—first, that any involvement of the respiratory system is the exception, not the rule. (6) When bronchitis does occur, it is only as a concomitant affection, comparable to that which occurs in other diseases, in which the powers of resistance are lowered. The smaller bronchi are never involved, and there is no special tendency to chest affection, as a sequel to this disease. Secondly, by the marked similarity of all cases of the disease. Thirdly, in Chitral Fever, the mortality is *nil*. Fourthly, I was unable to detect, in the bronchial or pharyngeal secretions, the bacillus of Pfeiffer. Moreover, the disease cannot be conveyed from the sick to the healthy by smearing the pharyngeal secretions of the former on the throats of

the latter. Fifthly, the disease ceases to prevail among very susceptible individuals, when they are removed from the valley of Chitral to a higher and colder climate. All these facts appear to be sufficient to distinguish the two diseases.

(III) DENGUE

The similarity of this disease to Dengue, as far as the single paroxysm is concerned, is sufficiently striking to cause some surprise at the absence of a rash or terminal fever. I have already indicated how these are wanting, and, without them, it is impossible to consider this disease Dengue. Other points of distinction will suggest themselves to the reader.

(IV) SIMPLE CONTINUED FEVER

In 1905, I returned the disease officially as *Febriacula*, on the ground that it is an infectious disease of doubtful nature, and that the paroxysm lasts three days, with no local affection of a constant or distinctive character.⁽⁶⁾ This much the name conveys. That "Chitral Fever," however, is a distinct affection, not depending on a variety of causes, but on a single cause, and that a given virus of disease, I am convinced. How far the disease corresponds to the "single paroxysm" fevers, on the existence of which in *India*, Lieutenant-Colonel Crombie lays such stress,⁽⁷⁾ my experience does not permit me to say. Unfortunately, his original account of the "single paroxysm fever" of *India*,⁽⁸⁾ is not before me, and such descriptions of the disease, as have come to my notice in the journals,⁽⁹⁾ have been too brief to permit my forming a just estimate of their points of resemblance or distinction. Since writing the account of this disease, my attention has been drawn to the 10 cases given by Captain James, in his first report of Anti-malarial operations at *Mian Mir* ⁽¹⁰⁾. The resemblance of those cases to "Chitral Fever" is very striking, and, taken in conjunction with my observations as to racial susceptibility and immunity in this affection, lead me to believe, that, in all probability, the diseases are identical.

PROPHYLAXIS

Although the etiological factor in this disease is unknown, and although as a consequence, all prophylactic measures can only be tentative, it appears evident, that we are dealing with a disease of a highly infectious nature, and that the measures, which would apply in other infectious diseases, will be equally efficacious in this. As, however, those which were practised in 1903 and 1904 were largely influenced by conditions of service in *Chitral*, it is needless to describe them in detail, suffice it to say, that removal of as large a body of men as is consistent with military requirements, and the improved sanitation of the infected site by means of thorough disinfection, constitute the essen-

tials of prophylaxis. The use of sandfly, and mosquito-proof curtains also is essential, as much for the sake of comfort, as for the possible protection which may thus be afforded against the disease.

How far the practice of these measures has been successful in 1903 and 1904, Chart I will indicate.

My experience of this disease leads me to believe, that all sites, where susceptible individuals have lived and suffered, and into which other susceptible individuals are introduced from year to year—thus keeping alive the endemicity of the disease—are highly infective, thorough disinfection, therefore, of such sites should be vigorously practised, if it is not found practicable to discontinue their use during the fever season.

TREATMENT

Upon this point, little requires to be said. It consists in the treatment of symptoms. The Chitralis themselves say, "lie in bed, take nothing to eat, and plenty to drink", to this I would merely add the application of a stream of cold water to the head, and cold sponging. The Bhisti with his "mussack" will be found a most useful assistant.

During convalescence, change to the hills is indicated, and such change is found to cut short this protracted stage of the disease and rapidly restores the patient to vigorous health.

I wish to express my indebtedness to Lieutenant-Colonel Semple, R.A.M.C., late Director of the Pasteur Institute, Kasauli, Captain Lamb, I.M.S., and to Lieutenant F.E. Wilson, I.M.S., for the assistance they rendered me while engaged in the study of this disease.

Note with regard to charts—Charts II and III, as they represent only the admissions into a particular hospital, are not intended to be more than a relative index of the extent to which Chitral Fever prevailed. Their purpose is to serve merely as a graphic illustration of the points to which they refer. With regard to Chart I, the case is different. In 1902 and 1903 Charts, admissions into hospital only are shown, whilst in 1904 all cases are shown. Chart IV represents all the untreated population of the villages around *Drosh*. The temperature charts have been selected from cases which occurred in 1903 and 1904.

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- (6) Crombie, *B. M. J.*, August 20th, 1904.
- (7) Crombie, "Cyclopædia Medica," 1902.
- (8) Crombie, *J. T. M.*, December 15th, 1898.
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- (10) *Lancet*, December 24th, 1904, page 1781.

FORMS OF PYREXIA DUE TO LEISHMAN-DONOVAN'S BODIES

By U N BRAHMACHARI, MA, MD, FCU,
Teacher of Medicine, Campbell Medical School, Calcutta

CHART I.

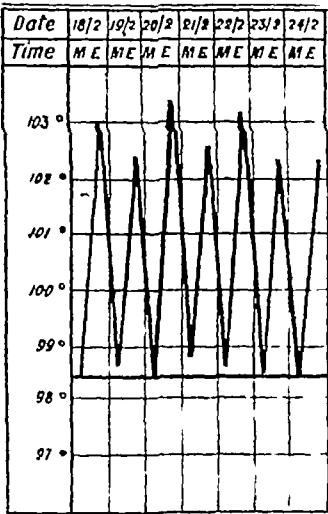


CHART II.

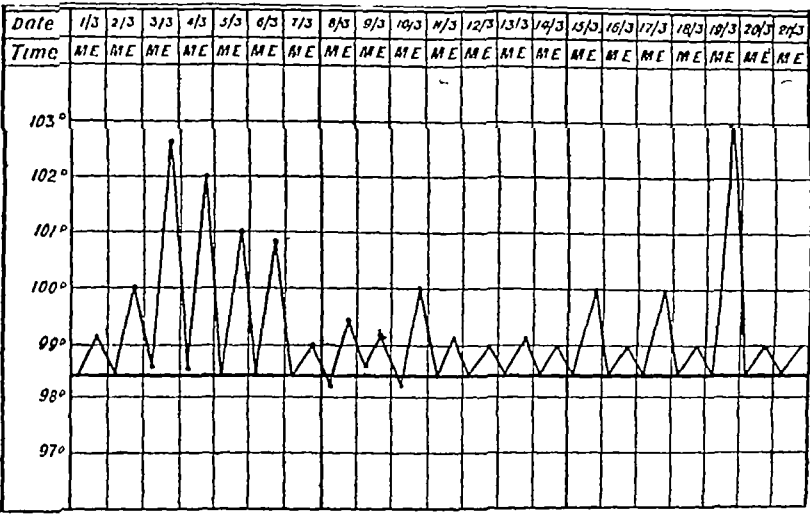


CHART III.

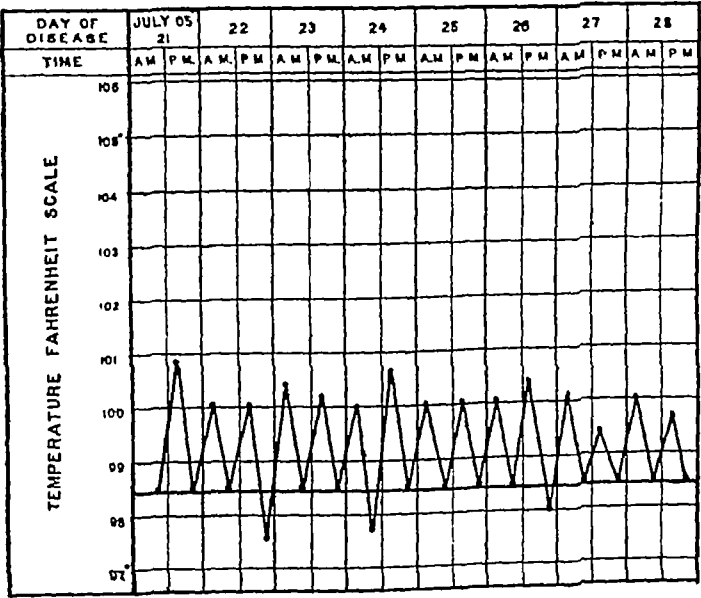
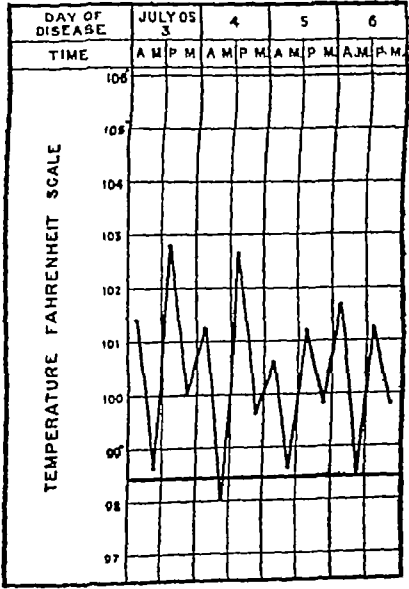


CHART IV.



FORMS OF PYREXIA DUE TO LEISHMAN-DONOVAN'S BODIES

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CHART V

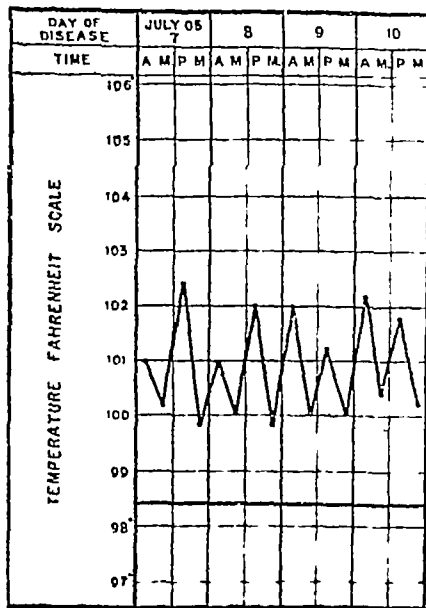


CHART VI

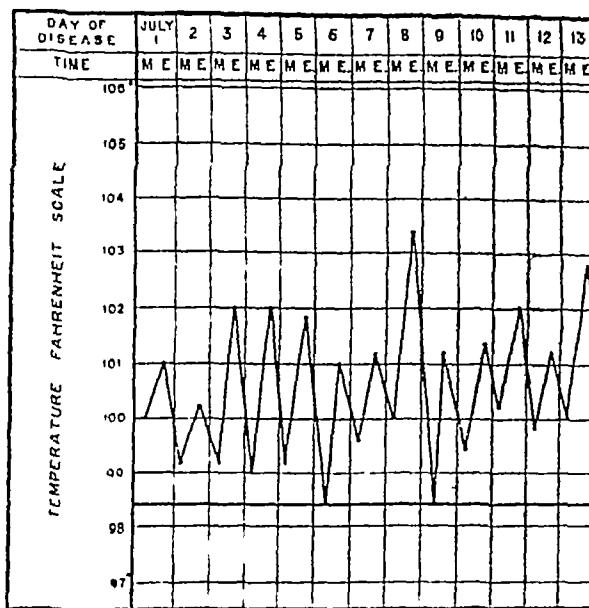
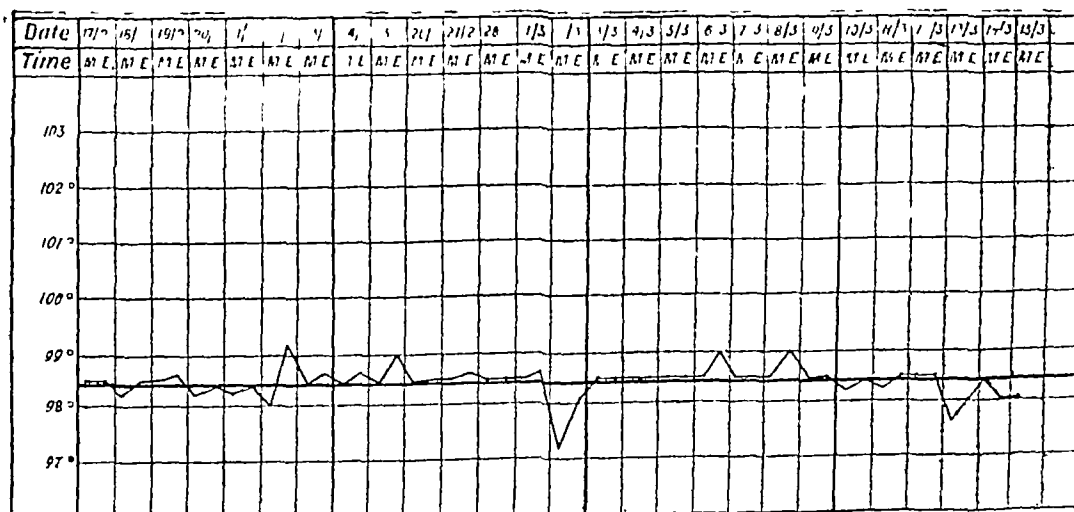


CHART VII.



FORMS OF PYREXIA DUE TO LEISHMAN-DONOVAN'S BODIES

By U N BRAHMACHARI, M.A., M.D., F.C.P.,
Teacher of Medicine, Campbell Medical School, Calcutta

(1) High intermittent pyrexia* —

Patient named Panchkowi. Fever may or may not be attended with rigors (Chart No I)

(2) Irregular intermittent pyrexia —

Patient named Govind. This type of fever is commonly seen. The fever may or may not be attended with rigors (Chart No II)

(3) Double quotidian pyrexia with double intermission during 24 hours —

Patient named Purusottam. There is a rise of temperature towards very early morning followed by intermission before 12 A.M. There is a second rise in the evening followed by intermission before 12 P.M. (Chart No III)

(4) Double quotidian pyrexia with single intermission during 24 hours. —

Patient named Hem Madak. This is a rise of temperature towards very early morning followed by intermission as in the above. There is a second rise in the evening which is followed by remission and not intermission before 12 P.M. (Chart No IV)

(5) Intermittent pyrexia with irregular periods of apyrexia

(6) Remittent pyrexia

(7) Double remittent pyrexia —

Patient named Hem Madak. There is a rise of temperature towards very early morning followed by remission before 12 A.M. There is a second rise in the evening followed again by remission before 12 P.M. The temperature does not come down to normal (Chart No V)

(8) Combined intermittent and remittent pyrexia resembling hectic —

Patient named Ramabaran. Patients may have this type of temperature for a long time (Chart No VI)

The presence of Leishman-Donovan's bodies is not necessarily associated with much pyrexia (Chart No VII). There was very slight rise of temperature of the patient for nearly a month.

The great peculiarity of the pyrexia due to the Leishman-Donovan's bodies is its variable nature. The various types may be combined in one and the same patient. We had a case who had at first low intermittent fever for some time, then high intermittent fever and then remittent fever. No explanation has as yet been offered of this variability of the temperature curve. There may also be variable periods of apyrexia in the course of the disease, though the parasites may still be present in the spleen. The double remittent type of pyrexia may pass into the simple remittent type as was the case with the patient named Hem Madak.

CASE OF PIROPLASMOSIS—SPLENECTOMY FOLLOWED IN EIGHT MONTHS BY DEATH

By JOHN SMITH, M.D.,

LT COL, I.M.S.,

Mysore

As I have had frequent enquiries as to what was the result of the Splenectomy I performed some time ago in a case of piroplasmosis, I think I may best reply through the columns of the *Indian Medical Gazette* by giving a brief account of the case from the time it came under my care till the scene closed in the usual way.

E. A. F., a Eurasian male, 27 years of age, was admitted to the Victoria Hospital, Bangalore, on 1st November 1904, with fever and enlarged spleen. In May and June previous he had fever for 28 days.

History—He had always been rather delicate. At his 17th year, however, he was strong enough to be a fireman on the Madras Railway, and lived at Jallapet. Two years later he slipped from his engine and hurt his perineum, but he recovered and became a shunter in 2 years more, at Raichur. Here the perineum gave him trouble again, and he had to go to hospital in Madras. During his stay in hospital he had fever which they called "Remittent." He again recovered and seems to have had fair health till the middle of October 1904. But I think during this time his health may be regarded as having been precarious. At any rate, severe epistaxis—so characteristic of the disease, is traceable from May 1904, at which time he appears to have noticed enlargement of the spleen. He weighed at one time 164 lbs, but now his weight is only 129 lbs.

Present condition—He is thin, pale, anæmic, liver normal in size, spleen extends downwards 3" below costal arch, heart weak; appetite poor; bowels irregular, but tending to constipation, suffers from insomnia, sleeping only for a couple of hours during daytime. Had a papular eruption over most of the body, particularly on

*[We have ventured to substitute the word *pyrexia* for "fever" in several places in this article. As the word "fever" referred to the pyrexia as indicated on the charts we thought it more accurate, remembering the customary abuse of the word "fever" in India.—Ed., I.M.G.]

fore-arms, lower part of trunk and lower limbs—very characteristic of the disease—the papular quality of the eruption is marred by incessant scratching, so that it looks somewhat like diffused scabies

Diagnosis—At first it was taken for one of those “irregular” malarial cases, but no malarial germs were found in his blood. Still he had quinine hypodermically and by mouth, arsenic, &c, without any good resulting. Nine days after admission, the hospital assistant Mr. Rama, Chandra Iyer, in charge of blood work, suggested proplasmiasis, and, sure enough, Leishman-Donovan bodies were found in abundance in a drop of blood aspirated from the spleen. These bodies seemed to be confined to the spleen, so I removed the organ on 4th January 1905, as he made no progress, and all previous cases had resisted other treatment. The spleen weighed 3 lbs 10 ozs, and resembled an ordinary malarial spleen. He seemed better for a few days after the operation, but in a fortnight the temperature began to rise again with severe pain in splenic region. Fearing abscess at the site of the pedicle, I re-opened the abdomen on 30th January 1905, and searched all round the site of the stump, but there was no sign of pus. The abdominal wound closed again by first intention, the temperature kept moderate and the pain disappeared. But he continued to lose weight, so that by 8th March he was only 109 lbs. However, on 7th April he was 111 lbs, and looked brighter than he had done for a long time. He was discharged at his own request on 9th April, that is about four months after the splenectomy.

Re admission—But in a fortnight (24th April 1905) he returned with hæmatoesis and fever, which started a week previously. He had now marked jaundice, heart weaker, liver enlarged, extending 2 inches below the costal arch in the mammary line, constipation, emaciation extreme, fever hectic in type, rising to 102.4 occasionally. I detained him till 5th June, trying vainly various lines of treatment. In August 1905 we heard from the Railway apothecary under whose care he had thus placed himself, that the patient had died on 7th August 1905, with a temperature that now and again reached 106° F.

This was a very typical case, the only thing common in the history of these cases is that they have all lived for longer or shorter periods in Madras city. The present patient lived about two years in Madras. They form a dark episode for so far alike in the experience of physicians and surgeons, for they have but one end, and that is death.*

[* The very high rate of mortality in Madras cases of Leishman Donovan infection is commented on by all observers, including Donovan himself, but this very high rate is not elsewhere so marked and we understand that in Calcutta, Dum Dum, &c, cases have been cured not infrequently. Comment is invited.—Ed., I M G.]

A CASE OF RECURRENT PLAGUE

By G. I. DAVIS,

CAPTAIN, I M S, B A, M B, B Ch, B A O,

Plague Medical Officer, Amritsar District

The following case will probably be of interest to those who are engaged in plague work, for it not only supports the observations of those who have diagnosed second attacks of plague, but it shows also that not only are second attacks possible but that a predisposed person may contract plague even a greater number of times.

Not in any book which I have had the opportunity of consulting is there any mention of a patient who had suffered from three distinct attacks of plague.

The details of the case are as follows—

M Female, virgin, æt 16 (1905), daughter of D S Jat, Sikh, Village, Vairka.

A The patient was attacked in December 1903 by bubonic plague. Bubo in left groin. The patient was seen by the Plague Medical Officer and treated. The attack was a mild one, and the patient recovered after three weeks.

There is an indefinite history of the bubo having been punctured, but there is no scar indicating suppuration, but the glands are still slightly enlarged (February 1905).

The above information is derived from the patient and her relatives and also from a note by the Plague Medical Officer who saw the case.

B The girl was inoculated against plague in March 1904, and from January 1904 to February 1905 was perfectly well and performed her ordinary household duties.

C In February 1905 I was asked to see the girl. She had then been ill for three days. Pulse 144. Respiration 40. Temperature 103°F. General condition fair. She had a small extremely tender bubo in her right groin. Calomel grs v was given and carbolic acid grs vi every second hour.

Though the attack was a fairly severe one, the patient did very well and recovered late in March. The bubo resolved without suppuration.

The case was of interest owing to the fact that it was a second attack.

There was no sign of any cut or ulcer on the right foot or leg nor any sign of vaginal trouble.

D During April and early May 1905, the girl went about her ordinary duties and appeared perfectly well. She was examined, for the purpose of completing the case, about April 15th and nothing could then be found wrong.

E. In May 1905 I was again asked to go and see the girl as it was stated that she was again suffering from plague. This I did not believe and said so. But notwithstanding I went to see her.

This was the fourth day of the illness. Pulse 140. Temperature 104°F. Respiration 40. There was a large very tender bubo with much œdema in the left groin. The patient was slightly

delirious And from my experience of many cases of plague I did not hesitate to pronounce it a typical case of the disease

There was no injury or disease of the left foot or leg, there was no vaginal trouble of any kind Purgatives were given and carbolic acid internally

The bubo suppurated and the girl recovered in July after a somewhat slow convalescence

Puncture of the bubo in the earlier stages to obtain material for microscopic examination was not permitted, and as the relatives were very suspicious no pus smears could be obtained

Throughout the second and third attacks the case was clinically a perfect picture of bubonic plague

It is to be regretted that the resolution of the bubo during the second attack had rendered the relations very unwilling to have it punctured for diagnostic purposes during the third illness

On each occasion when the patient was attacked by plague there were other cases in the house at the time These other cases were always of the bubonic type of the disease

Unfortunately the girl has now been lost sight of owing to the completion of her marriage ceremonies and her departure from the district So she will not be able to be watched during the next epidemic

It is probable that these cases of true recurrent attacks are much more common than is generally supposed, but so far this is the only case observed in this district of a patient who has suffered from three distinct attacks of plague

Six cases have been noted of patients who have had two attacks, one of these died during the second attack, but the other five did well

[See Simpson's *Treatise on Plague*, p 294 He quotes three cases, one in detail, of second attacks, and refers to Russell's book on plague (1791), in which Russell mentions 28 cases of reinfection out of 4,400 cases of plague.—En, I M G]

NOTES ON THE LAST PLAGUE EPIDEMIC IN THE GIRIDIH SUB-DIVISION, DISTRICT HAZARIBAGH

By SARASI LAL SARKAR,

Assistant-Surgeon, Giridih

PLAGUE first broke out at Pachamba, a town situated about three miles from Giridih, about the end of July 1904 The source of this plague infection can be traced to a family who came there from Calcutta, a short time before the outbreak The plague epidemic ceased at the place about the end of September 1904, thus lasting about two months The population of Pachamba is 3,510, 36 attacks and 23 deaths occurred there

I may note here that the speedy termination of the plague epidemic at Pachamba was principally due to the activity of the vigilance committee formed there, which induced generally the plague-infected families to depart from the town at the shortest notice Though the plan was good for Pachamba, it probably helped to a certain extent the spread of plague to other villages When plague was raging at Pachamba there were no plague deaths at Giridih, though rats were dying in large numbers at the latter place It appeared to me very strange that no plague case occurred there

Plague broke out in the town of Giridih about the end of September 1904 and ceased about the end of February, thus lasting about five months The population of the town is 9,433, eighty nine attacks and 63 deaths were reported

I have been able to trace all the earlier plague cases which occurred at Giridih to human infection I may note down below briefly the way, with some details as to the manner in which the plague infection became distributed in the various parts of the town

There is a block of huts on the west side of the house of the late Vice-Chairman of the Municipality This is the residence of a branch of Mudi family who have several head quarters in the towns of Giridih and Pachamba During the outbreak of plague at Pachamba certain members of this Mudi family came from Pachamba on account of the plague outbreak in that locality to their relatives in the above-mentioned block of huts Evidently they brought with them the plague infection from Pachamba For soon after Peary, a son of Dahu Mudi, got plague and died Chain Mudi, the brother of Dahu Mudi, was next attacked He was taken to Bhandaridih to a place about two miles from the town where he died

One Muji Mudi with his family lived at Bhandaridih in the same house where Chain Mudi died When Muji Mudi returned to Giridih from Bhandaridih his son became infected with plague Muji Mudi at once left with whole family his residence near the Railway bridge and had himself and his family removed to a new house at Makatpur, belonging to one of his caste relatives named Bundi Mudi, which is let out for hire Here his son died Then he was made to leave and to go to his old residence near the Railway bridge Here Muji Mudi himself became infected with plague and died Then two daughters of Muji Mudi became infected with plague Fortunately they recovered

So it will be seen that this Mudi family infected three places within the town of Giridih and one place outside the town with the plague poison These places at once became secondary foci of infection, and a number of plague cases can be traced to these sources of infection

From Giridih an infected man came to Chatadih towards the end of October 1904 The infection in the railway collieries can be traced to this man

The outbreak in the colliery area ceased in the month of January 1905, thus lasting about 2½ months The population of the infected villages in the colliery can be roughly estimated to be about 6,000, 39 attacks and 38 deaths were reported from this area

Thus it appears that Pachamba became first infected from an imported case from Calcutta Next it appears that for two months Pachamba became infected as if the poison has been localized there If Peary Mudi had not come from Pachamba to Giridih carrying infection, Giridih in all probability would have been free from the pest altogether, although the rats were dying there even before the arrival of the man from Pachamba with infection There were 89 cases at Giridih which may be traced in the way I have shown to the infection carried by a man from Pachamba And it would seem that the dying of rats cannot be taken in the case of Giridih either as evidencing a local cause for the disease or as a means of spread of it

Another point that forces upon our attention in studying the above epidemic is this

By an instinct as it were, the people ran away from any house or place where plague cases occur But they ran away to another house or another place where they have connexions or relatives, because they cannot usually get any place in uninhabited tracts where there is supply of good drinking water

For instance when the disease was raging at Giridih many of the well-to-do people constructed huts in one or two unfrequented places where there was drinking water The common people surely would have followed the example if there had been many such places where drinking water was available Thus the experience of

Giridih shows that the best way of minimizing of an effect of the outbreak and in fact to cut it short, is to provide sources of water-supply from place to place in neighbouring uninhabited or sparsely inhabited healthy tracts and to induce people to remove there by offering facilities for construction of temporary sheds and huts by the branches of the sal tree or the like.

In short dispersing the population is the most practical means of causing plague to disappear, and people are often naturally willing to disperse, but want of drinking water operates as a serious obstacle in the way of the people in this respect. Therefore the question of water supply appears to be the most important question amongst those raised in connexion with plague.

In making notes on the late Giridih plague, I should not omit mentioning the interesting fact, viz, the experiment of combating plague by attempting to kill the rats in a systematic manner which was first started by Dr W Saise, the Superintendent of the E I Railway Collieries.

The rat killing was commenced within the colliery area towards the end of November 1904. Apparently on reading Captain Liston's articles on the propagation of plague by means of rat fleas, the colliery authorities started the plan of catching rats alive and then killing them by drowning in perchloride solution and then cremating them from the beginning of December 1904. By the end of April 1905, the colliery authorities were able to kill more than 14,000 rats. It is a very interesting question to discuss whether these killing of rats had any effect of checking the spread of the plague epidemic.

In this connexion first of all we may note the fact that the chief plague infected areas in the sub-division were Pachamba, Giridih and Railway collieries. It appears that the Pachamba outbreak ran its course in two months, the Giridih outbreak in five months, and the colliery outbreak in 2½ months. The period of the outbreak and the number of plague deaths appear to be roughly in proportion to population.

In all the three areas disinfection and evacuation were employed, but only in the colliery area rat-killing on a large scale was pursued.

Though the proportion of plague deaths in the colliery area is somewhat favourable, as compared to other areas, it should be mentioned that in different parts of the sub-division, as in fact in different parts of India, the commencement, height and duration varied widely in point of time. For example in Pachamba the plague commenced by the middle of August and disappeared by the middle of September 1904. In Serampore it commenced by the end of February 1905 and disappeared by the end of March. In Jorabad it commenced in the middle of January 1905 and disappeared by the end of February 1905, so it is difficult to say how far the decrease at a certain place and at a certain time is owing to the natural course of the disease and how far it is owing to any particular cause as rat-killing.

The fact that the sanitation resources and the organization in the colliery area are better than what can be expected outside the colliery area has undoubtedly contributed in lessening the severity of the plague epidemic within the colliery area as compared with the verulence of the epidemic in other places as Giridih and Pachamba.

It would appear that the difference in the number of plague deaths in the colliery area proper before and after the rat killing was only three.

In view of the facts noted above and of the evidence of the introduction of plague into Pachamba from Calcutta, into Giridih from Pachamba, into the collieries from Giridih, and so on, by human infection, I am inclined to think that our experiences in the Giridih Sub-division do not throw much light on the influence of the rat or his parasites as infecting agencies or on the connexion between rat destruction and plague prevention. If

anything, they appear to be against Captain Liston's theory. At any rate, they do not favour it.*

A Mirror of Hospital Practice

GALL-STONE

CHOLELITHOTOMY

By J T PARKINSON,

Civil Surgeon, Fatehpur, U P.

HANOMAN SINGH, Thakur, aged fifty years, was admitted into the District Hospital at Fatehpur on the 16th of May 1905, complaining of constant pain in the right hypochondrium, the point of greatest intensity over the gall-bladder.

On admission the patient, who was much emaciated, stated, that the pain commenced about two months previously and had kept up continuously ever since, with occasions when the pain was intense and piercing in nature. This constant pain had worn him out and reduced him to his present state, a mere shadow of a man. His appetite had gradually failed and his bowels moved irregularly, constipation being the rule. He never, he said, at any time, had jaundice, and it was the pain alone which brought him to hospital.

On examination liver dulness was found to be much increased, and below the ribs on the right side manipulation revealed a well-marked hard globular mass, painful to the touch and certainly of the dimensions of a good-sized fist. It gave at first the impression of cancer of the liver, the man's age, great pain, quick emaciation, &c, all tending to such a conclusion. However, once the patient was seen in a typical attack of acute pain there was no doubt about it being an attack of hepatic colic.

The patient was put on the usual large doses of ammonium chloride, Tamaracum and muic acid with occasional doses of sulphate of soda, calomel in small doses and podophyllin when more than usually constipated. For the pain, hot fomentations were applied locally, opium by the mouth and morphia hypodermically. On one occasion the pain was so intense that chloroform had to be administered.

Having continued treatment for some days with no apparent likelihood of making any impression on the pain, I decided on operation, but the patient and his friends were not anxious for surgical interference. It was only after much explanation and probably seeing for themselves there was no change for the better by internal remedies that they ultimately agreed to my suggestion.

* The acceptance of the rat theory or the rat flea theory does not necessarily involve the denial of the conveyance of the disease by infected persons or by infected clothing.—Ed, I M G

Operation—On the 25th of May having been previously prepared, the patient was put under chloroform and the operation proceeded with. An oblique incision about 3 inches in length was made over the most prominent point of the hard lump noted previously, entering the abdominal cavity about two inches below the margin of the ribs. All bleeding was stopped before the peritoneal cavity was opened. And as soon as this cavity was entered the gall-bladder protruded through the wound. Into the gall-bladder a large grooved exploring needle was inserted when some glairy mucus escaped and the point of the needle was felt to impinge upon something hard. The exploring needle was now withdrawn and the gall-bladder seized by two Spencer Wells' forceps, one at either end of the wound, drawing it slightly out of the wound. The gall-bladder was then incised between the two forceps and a large quantity of glairy mucus escaped. The finger was introduced into the cavity of the gall-bladder and came upon a gall-stone of large size. Before attempting its removal it occurred to me safer to stitch the opening in the gall-bladder to the sides of the abdominal wound, as there appeared a large quantity of this glairy fluid still present and its entry into the peritoneal cavity was not desirable. By closing off the opening first this could not occur, and the removal of the gall-stone could as easily be accomplished afterwards, if not with greater security against the infection of the peritoneum. I put in six interrupted sutures, one at either end and two at each of the sides of the opening. Having thus secured the gall-bladder, the finger was again introduced into its cavity which appeared of unusual dimension, the tip of the finger not reaching its walls in all directions. The gall-stone was lying free in its cavity, and it seemed quite an easy matter just to introduce a pair of forceps and remove it. However, this was not so easily accomplished as the stone kept slipping off the forceps, possibly owing to its peculiar conformation and its covering of glairy mucus. I ultimately secured and removed it by a pair of bullet forceps. All the time there was a steady flow of glairy mucus. The operation ended in the establishment of a biliary fistula, the opening being simply dressed with a big pad of antiseptic wool and gauze secured by a broad bandage. No syringing or washing out of any kind was resorted to.

The gall-stone weighed 70 grains and was pyramidal in shape, the base an irregular ovoid and apex rounded off. Its greatest circumference was almost 3 inches and its base in greatest length one inch. It was made up of a central softer part and an outer cortex hard and shining like a chestnut. The centre was of a yellowish colour and the outer part dark brown.

Progress—Patient, when the after-effects of chloroform had passed off, said he was absolutely

free of any pain, and from day to day the following notes are entered on his ticket.

26th May 1905—Dressings changed, glairy fluid escaping, temperature normal morning and evening, some nausea. Ice and milk only given.

27th May 1905—Dressings changed, wound quiet, slight discharge, no pain, but troublesome hiccough for which hydrocyanic acid and morphia was given.

28th May 1905—Had a number of liquid motions in the night, most offensive odour. Slight glairy discharge on dressings. Some tenderness at lower margin of liver and upwards. Occasional hiccough. Same medicine.

29th May 1905—Wound dressed and nothing particular to note.

30th May 1905—Wound dressed, slight hiccough, practically no discharge on dressing.

31st May 1905—Temperature keeps normal. No trouble except slight occasional hiccough.

1st June 1905—Patient feeling well, two sutures came away and opening much contracted.

2nd June 1905—No more hiccough, and only complaint is want of appetite. Doing well.

2nd to 6th June 1905—Discharge did not stain dressings. Opening half the size, no pain whatever, but constipation very trying to patient.

7th to 12th June 1905—No trouble except constipation which had to be relieved by a sweet oil enema and continuous doses of the same internally for days. At times the scybala were so hard and large that it almost prostrated the patient voiding them. Remaining stitches removed on the 12th June and opening almost closed.

13th to 16th June 1905—Now only want of appetite complained of and wound quite healed, just three weeks after operation.

17th June 1905—Patient developed some dulness at bases of both lungs and insisted on leaving the hospital as he now had no pain and in other respects was all right.

Remarks—(a) The absence of jaundice at any time is peculiar, as patient had quite a number of typical attacks of hepatic colic. (b) The pain was great and the patient was practically never free of pain until the stone was removed. I conclude that the gall-stone producing irritation of the gall-bladder gave rise to a free excretion of the glairy mucus noted, which painfully distended the gall-bladder. The gall-stone in itself could not cause such pain. It was a fairly large one with no irregularities on its surface, and how often has the gall-bladder been found full of gall-stones after death, having given no suspicion during life of their existence. The attacks of acute pain could also only be explained by the gall-stone probably causing spasm of the gall-bladder. Had it been due to the passage of smaller stones or inspissated bile, there surely in these circumstances must have been jaundice at some time, which there was not. (c) The duration is remarkable as the

patient persistently stated that pain commenced only two months previously, yet the stone must have been in the gall-bladder a longer time than that to have attained such a size. As stated before, I conclude the pain owed its origin to the excessive glairy excretion and was thus only felt after this excretion had got beyond a certain amount and was distending the gall-bladder. (d) Surgically I departed from the practice laid down in such operations, by first stitching the gall-bladder to the abdominal wound and then removing the stone. In the latest edition of Walsham's *Theory and Practice of Surgery* and in all the other works I have consulted, exactly the opposite procedure is advocated. I have previously stated my reasons for adopting the method I did and have cause to be well satisfied with the result.

The case was interesting both medically and surgically, the operation proving successful, as the patient beyond a slight tenderness over the liver, a few days after operation, never had any pain after the removal of the gall-stone.

IVORY EXOSTOSIS OF UPPER JAW

By D. G. ANANT RAO, L.M. & S.,

Assistant Civil Surgeon, Ujjain Civil Hospital

THE patient, a Hindu female belonging to one of the agricultural castes, aged 25 years, residing in the village near Ujjain, was admitted into the Ujjain Hospital with a hard tumour of the upper jaw, of about six years' duration.

The operation was performed on 19th May 1905 by the Residency Surgeon.



FIG 1

The patient on admission was well developed and well nourished. *History*—The tumour started as a hard growth from between the upper incisors, and gradually spread involving the situation of the incisors and canine, and extending backwards on to the hard palate and forming a painless and hard mass as large as a

duck's egg preventing closure of the jaws. Its anterior surface was ulcerated and bled when handled. The central incisor teeth were missing, but the lateral were on the growth widely separated from the canine.



FIG 2

The Operation—Chloroform having been administered by the nostril a tooth on either side was first extracted. An incision was then made along the line of the alveolar process, and the periosteum was peeled off the bone underneath. The tumour was drilled by the burr of a surgical motor in several places, it proved to be an ivory exostosis, and required extreme force in order to drill and chisel the mass, a circular saw run by a motor proved of some assistance. In spite of the extreme hardness of the tumour it was very vascular. Channels in the bone contained large vessels that were found impossible to secure or to stop bleeding, even by inserting pegs of wood. As it was only waste of time trying to stop the hæmorrhage the operation was completed as rapidly as possible, when it was found easy to secure the bleeding points, the portion inside the mouth possessed a pedicle and was found to overhang the hard palate like a mushroom, although it was sessile over its attachment to the alveolus. The condition of the patient after the operation caused some anxiety owing to the large amount of blood lost.

The patient made favourable progress and went home cured within ten days. Her photo before the operation and immediately after the recovery was taken to be given to the *Indian Medical Gazette* for publication along with the case.



Indian Medical Gazette.

JANUARY, 1906

ANNUS MEDICUS, 1905

To-day we begin our forty-first volume and, before briefly reviewing the year that has passed as regards ourselves and medical work in India, we must record our thanks to the contributors to the *Indian Medical Gazette* for the past year who have been more numerous than ever, and we think a glance through the index and table of contents for the year 1905, will show that the work therein recorded has been as good as ever and forms a substantial contribution to the literature of tropical medicine, surgery and public health. We need only briefly refer to the most important of the subjects dealt with in our columns last year. Plague has been as prevalent as ever, and medical officers have not failed to put on record their experiences, we may specially refer to the papers by Liston, Browning-Smith, Gordon-Tucker, Crawford and Chaytor-White. There has been considerable evidence gathered together on the importance of the flea as the connecting link between the disease in rats and in man. We hope that advantage will be taken by Medical Officers on plague duty to contribute to our special plague number which we propose to bring out next spring, at the end of the tenth year of the present great plague epidemic in India. On the subject of snakebite it looks as if substantial progress had been made in the treatment of this fatal affection, for it can hardly be doubted that the prompt use of permanganate of potash, in the manner advocated by Leonard Rogers, is a successful method of neutralising the virulence of the snake venom, and has the enormous advantage of being efficacious against the virus of both viperine and colubrine snakes.

To the subject of dysentery a whole special number was devoted. This is a disease of the most vital importance in India, and comparatively little work has been done on this subject of recent years. The connection of the amoeba with certain forms of dysentery, and with liver abscess has been made more manifest by the work of Strong in Manila and Rogers in Calcutta, but a large amount of the dysentery which prevails in our prisons and still more so in our asylums is, we believe, not amoebic, but

bacillary. Much research is still required, and this will not be done till Government has adopted and carried out the suggestion of the Sanitary Commissioner to equip small laboratories in the Central Jails.

The degree of prevalence of cancer in India has been discussed in our columns by Megaw for Calcutta and Sutherland for the Punjab. There is no doubt whatever that cancer is a common disease in India, but probably not so common as in Europe. The research which is being devoted to this fell disease in Europe and America has not yet been rewarded with any great discovery, but we look forward with confidence to the announcement some day.

Malaria has, of course, occupied much of our attention during the past year, and research has been largely devoted to the most important subject of the nature of the chronic cachectic conditions usually attributed to the effects of malaria. We cannot say that we see clearly on this subject yet, but the mists are clearing away, and we hope that soon the whole question will be much clearer, and the exact nature of the chronic, so-called malarial, fevers settled. Much good work has been done on the study of mosquitoes, and the splendid volume of James and Liston on *the Anopheles of India* will for long remain a monument of their industry. Much more remains to be done before we know all that is needed about mosquitoes and malaria, and more studies like that on malaria in Ferozepore, by Lt-Col Adie, I.M.S., which we published in January last, are much needed. A considerable amount of quiet work against the malaria is being done, and papers like those we published by Colonel King and Colonel Hamilton are an indication that the matter is receiving much attention, and that opinion is inclining to the value of sanitary works of a permanent nature, rather than towards efforts at the formation of mosquito brigades, &c.

Our columns have dealt with many subjects of surgical interest, notably with cataract. The papers of Major Henry Smith of Jullundar have attracted wide attention, and his enormous experience and great success in the particular method of operating he advocates, has led to his operation being tried by a large number of Civil Surgeons in India. The immediate results of the operation are brilliant in the extreme, but we still require more information as to the after-results and an examination of cases so operated on some weeks or months after operation would be invaluable and would

determine the degree of astigmatism, if any, left by this as compared with other operations. Till this is determined, operators hesitate to recommend the method for persons who have to use their eyes for reading, &c. We invite Civil Surgeons who have tried the Jullundar operation, to give our readers the benefit of their experience in the columns.

To the subject of public health we have devoted considerable space last year. The use of copper for the purification of lakes and tanks was advocated in America and made much of as an epoch-making discovery by an ignorant but well-meaning lay press. This led to an examination of the question by sanitary and bacteriological experts, with the effect that while admirable results were published in America of the value of copper as a means of purifying water, similar experiments, both in Indian laboratories and in the tanks of Indian cities, were quite failures and the detailed report of Dr. N. Cook, the Health Officer of Calcutta, which we gave in full, put an end to all hopes we may have had on the value of copper as a means of clearing the too often foul tanks from which so many of the millions of India are content to draw their drinking water.

The Report of the Septic Tank Committee appointed by the Government of Bengal advanced this question considerably, in that they clearly showed that it could not be said that the effluent from these tanks was free from pathogenic bacteria, while at the same time they showed that the amount of impurity added to a big fast flowing tidal river like the Hughli was small, and in any case it is obvious that the amount of impurity added by the effluent from a septic tank is far less objectionable than the discharge of crude sewage into the river, and far less objectionable than the use of the banks of this river as a place of public resort. More recently, we understand that the Sanitary Commissioner of Bengal has devised a means of purifying these effluents by chloride of lime, which, if it proves effectual and practical, will be a great advance and will go far to popularise the use of this method of nightsoil disposal, which we undoubtedly think is far and away the best system yet proposed.

In the past year we have been able to devote considerable attention to the columns devoted to "Service Notes." We have frequently been informed that these notes are much appreciated by our service readers, and it is our endeavour

to spare no trouble to make them more attractive. During the year the long-looked for revision of the Civil Surgeons' pay took place, and Captains and Lieutenant-Colonels have been well pleased with the results. The pay of the Jail Department has been, on the whole, improved, and though the new rates will for some years press hardly upon individual officers, yet undoubtedly they are an advance on the former rates. The institution of study leave is a great boon to men on furlough, and will be largely taken advantage of. The new regulations for accelerated promotion have come into force, and several officers have received 6 months' promotion. It is not yet clear how this will work, and possibly in certain cases heart-burnings will be caused. It would be well, we think, that a statement should be published showing how an officer can look forward to earn this promotion. The final selection must always remain in the hands of the Director-General, but we think it would be well to indicate to officers the means whereby they can become eligible for such promotion. This is a matter which, however, we can safely leave in the hands of our present Director-General.

Current Topics.

STUDY LEAVE AND POST GRADUATE WORK

We publish in full the following interesting letter, which will be useful to men availing themselves of the new rules for Study Leave—

"As much time may be wasted by those not conversant with the present ways of London Institutions, but who are anxious to work at some special course or to pass one of the higher examinations, the following notes may be of service. They are not designed merely to suit the requirements of Study Leave regulations, which will no doubt be modified according to circumstances from time to time, but also to help those who simply want to rub up their general knowledge. It may, however, be as well here to remind men applying for Study Leave that the course of work must first be laid out and approved by the authorities, and that certificates of having done the proposed course must be forwarded to the sanctioning authorities whether an examination has been passed or not.

Beginning with the preliminary subjects—Anatomy and Physiology—I would advise any one going in for the higher examinations requiring these subjects, such as the First Fellowship, to work at King's College, for the examiners in these subjects are nowadays specialists, and not all surgeons as was formerly the case. It has become essential, therefore, to learn under specialists, and King's College offers great facilities in this direction. The fees are not high, and any class may be taken separately. I should add here that Dr. Willoughby Lyle, the Assistant Professor of Physiology, holds private classes at King's, for the M.B. and First Fellowship, which are largely attended. Detailed information regarding the classes is obtained from the Dean, King's College, Strand.

For other work two courses are open. First, attendance at the various post graduate courses, such as the West London Hospital and the North East London Hospital. These advertise their *Syllabuses* in the medical papers, and they are arranged for general work, not especially for examinations. I do not know if they would be recognised for Study Leave, nor have I any personal experience of them. I am told, however, that a great deal of trouble is taken and that they are eminently suitable for their purpose.

In this place the Medical Graduates' College and Polytechnic, 22, Chancery Street, should be mentioned, and I would strongly recommend all I M S men working in London to join it, for the advantages are great, whilst the fees are most moderate. On every afternoon there is clinical work, general or special, followed by lectures given by well known men. In addition, there are practical courses on special subjects - eyes, throats, ears, gynaecology, etc., for which a small extra fee is paid. Each course extends over a period of about six weeks. They would naturally be of no great value to men advanced in these lines, but for men who have not had much practice in these branches they form an invaluable introduction to more advanced work in the special hospitals, besides giving one the advantage of getting to know various specialists with whom arrangements can generally be made for further study in their own hospitals, if more practical work is desired. For men entering for examinations, these courses are systematic and useful. The Secretary is Capt Hayward Pinch, F R C S, an old I M S man, who is always glad to welcome men of our service, and from whom all particulars are obtainable.

Secondly, apart from the above courses, I suppose most London men would begin by attending their original schools. Although these each have their special classes for advanced examinations, they are only held, as a rule, for about six or eight weeks previous to the ordeal, and it will generally be found that more variety, both in teaching and material, will be needed than can be obtained at any one school. The London Post Graduate Association—whose headquarters are in that well-known spot—the Examination Hall, Victoria Embankment—meets this want by issuing tickets for three or six months, which entitle the holder to attend the clinical and operative work and all ordinary lectures at nearly all the general and special hospitals in town, a full list of which is printed on the ticket. I purchased one and made a limited use of the advantages set forth, I found that of the 'crowd' whom I regularly met in the more popular places, only a few of the men possessed these tickets. No one ever asked to see mine, and seeing that I only made regular use of a few of the institutions allowed, I must admit to having the impression that the fee (which is rather high) was wasted. Still, if one should be asked to produce the ticket and be found wanting, the position would be rather undignified.

For those going in for any of the examinations in Surgery, I might mention here the places which I myself found most useful, and, judging by the number of post-graduates whom one regularly met in the weekly round, these are the places where one can, perhaps, learn most.

On Monday afternoons, Prof. Watson Cheyne shows cases in the operating theatre at King's College Hospital, and gives short clinical lectures on the cases brought in.

On Tuesday, Mr. Pearce Gould goes round the wards in Middlesex Hospital with a 'following'. As one would expect, the art of surgical diagnosis is here exhibited in its highest form.

On Wednesday, Mr. Frederick Eve, at the London Hospital, has in at home which is always crowded, from 15 to 30 cases may be shown, and history, diagnosis, pathology and treatment are all rapidly discussed. On account of the large amount of material there are always some good cases.

In medicine, I do not know of any general physicians who lay themselves out to teach in the same way as the

surgeons above mentioned. The usual course adopted by men going in for higher examinations, is to read with some one who makes it his business to find cases to show. There are, however, several institutions where courses of lectures are given free to medical men, these are advertised in the medical papers from time to time. Amongst these, perhaps, the most important for us in India are the lectures regularly given at the National Hospital for Nervous Diseases, Queen's Square. They are held on Tuesdays and Fridays, and are well worth attending on those afternoons when Dr. Rissen Russell takes out patients, I would specially urge I M S men to attend, for he makes a point of teaching, and from him one gets clear ideas on nervous diseases, knowledge of which has been growing so rapidly of late years. Indeed, he is now so well known as a teacher and physician that it is not necessary for me to do more than mention him.

Museum work is a branch of study in which most I M S men will probably need special coaching for examination purposes, as we have no opportunities of keeping it up out here.

As may have been gathered from these notes, nowadays, great stress is laid on practical knowledge in all the higher examinations, the book man is at a discount, the clinical part of each examination being considered the most important.

Finally, it may not be generally known, that the Medico-Chirurgical Society has special arrangements for service men, by which one gets all the advantages of this society for a reduced subscription. The Secretary, Hanover Square, if applied to, will give all the needed information.

THE above note by an officer who has just returned from leave, applies to London. Will some officer at home, or going home, give us a similar note on post-graduate work in Dublin or Edinburgh, or for such special diplomas as the D P H, or the D T M.

MILITARY HYGIENE

SOME time ago we favourably noticed the republication of the Parkes Prize Essay on Field Medical Organization, by Major R. Caldwell, F R C S, D P H, of the Royal Army Medical Corps. We have now before us an admirable volume* dealing with the many problems of military sanitation in a readable and intelligent way. Many of the chapters contain much that is necessarily old, but every question is considered from the point of view of the medical officer in charge of troops in barracks or cantonment, and is full of practical advice, and illustrated either by the special experience of the author or from official documents or records.

The book is clearly written, and appeals, and we say, should appeal to other than medical officers of the Army. A little knowledge is a dangerous thing, it is true, but we are all in favour of educating the military officer in matters sanitary, not that he may encroach in the proper functions of a medical corps, but that he may intelligently understand and thereby aid in carrying out reforms and improvements suggested or brought to his notice by the medical officers.

* Military Hygiene, by R. Caldwell, F R C S, D P H, R.A.M.C., Ballière, Tindall & Cox, London, 1905, pp. xii and 488. Demy 8vo Price 10s. 6d. nett.

The chapters on plague, cholera, &c, contain little on which we need comment, that on plague is hardly written with the first-hand knowledge that would make it worth reading. The names of Hankin and Haffkine are confused, and the author is carried away by unnecessary warmth when he describes the race of native quacks which infest every bazar.

A chapter on enteric fever coming from an R A M C officer, with Indian experience, may be expected to be of value and interest. The author follows the plausible view that an antecedent case is not necessary for an outbreak, as we may provisionally admit that *b coli* or *b enteritidis* may be converted into *b typhosus* under suitable conditions, but while we admit that an antecedent case may not be absolutely essential, it is difficult, if not impossible, to prove that in any body of men collected on a given spot the infection may not have been conveyed by a convalescent, or by an ambulant case. Dust and flies are important factors in the spread of enteric, the very imperfect control exercised over urinals and latrines in charge of more or less ignorant sergeants is a cause of much disease. The trenching system is good, if effectually supervised, as in prisons for example, but unless supervision is effective, the system is bad, as results seen in our municipalities show. The effects of improper food and chill are given their proper place in the etiology of dysentery. In the chapter on refuse disposal, a good account is given of the trenching system and the importance of flies as spreaders of disease is emphasised. The description quoted on pages 242, 243 of the book on the military latrine, is scarcely creditable to the military authorities and need, and should, not be allowed to exist.

Major Caldwell's experience of native servants has been unfortunate, to judge of the unsavoury language in which they are described.

The fact that British regiments and British officers' messes in this country often employ a very low type of native as servants is, in our opinion, one of the reasons why the young soldier and his young officer suffer from typhoid. This is due to the great ignorance of the officers and men as to the different classes of natives of India, and they are imposed upon and take as servants often natives that men with more experience of the country would scorn to have near them. This can only be remedied by officers and men taking the trouble to learn the language and to know something about the castes and classes of natives in and around the lines.

There is a useful chapter on dress, but the complaint that puttees cramp the leg muscles shows that the author, like many others, knows only the inferior cotton puttee, if the elastic woollen puttee is used nothing can be more comfortable for marching.

There is much of great interest in this book. It is written too much from the point of view of the British regiment. Like the "Coat, warm,

British," of the indent form, it is Hygiene, British, Army, and its lack of attention to the Indian army largely detracts from its use to the readers of this Gazette.

THE INDIGENOUS DRUGS COMMITTEE

It is sometime since we heard anything of this Committee, which our readers will remember consists of, the Superintendent of the Botanic Gardens, Calcutta, the Medical Storekeeper, Calcutta, Rai Chuni Lal Bose Bahadur, and Mr. Burkill, the Reporter on Economic Products, under the presidency of Lieutenant-Colonel G. A. Harris, F.R.C.P., I.M.S., the Professor of Materia Medica, Calcutta.

The Committee have, however, been silently at work and in correspondence with several medical men, who have tested and reported on several indigenous drugs. We have received copies of the enquiry notes on several drugs, e.g., *Podophyllum Emodi*, the Indian drug, is in every way equal to the American drug, and is economically superior, as it contains more of the resin of equal quality and power. *Altonia scholaris* (vern. *Chutian*) has been tried to find if in any way it would do as a substitute for quinine. Natives of India have considerable faith in it, and it was found useful in Manila. Opinions are contradictory, and its value is probably that of a tonic only. *Picrorhiza Kurroo* is used as a tonic and febrifuge, it is useful as a bitter tonic, but useless as a substitute for quinine. It is called in Indian bazars *Kutki*, a name also given, however, to black hellebore and *gentiana kurroo*.

A tincture of *Adhatoda Vasica* (B. P. addendum 1901) has been tested in cases of asthma and bronchitis. The following evidence about it has been collected —

"Doses — Administer in doses of not more than 20 minims.

Remarks — *Adhatoda Vasica* is an extremely common plant in India and very widely resorted to as a remedy for Asthma, Bronchitis, Phthisis and Pneumonia. It would seem to be quite serviceable in cases of Bronchitis and Asthma. The following is a resumé of the reports already received —

In the experiments so far done (see Proc. Indigenous Drugs Committee, pages 387—418) Captain Childe who used 30 minim doses of the tincture, reported that it did well in cases of Bronchitis, especially in chronic Bronchitis, but no benefit resulted in cases of Phthisis. Lieutenant Colonel Nailer reported that the drug was administered in chronic Bronchitis, Bronchial Asthma and Phthisis, and that he would not recommend its use in such cases. Lieutenant Colonel Lee reported that it was a useful expectorant. Major Crawford reported that the drug was tried in several cases in the form of a tincture, it acted well in the later stages of acute Bronchitis. Assistant Surgeon W. D. Innes reported that the drug was used in cases of chronic Bronchitis, its action was not very definite and not as effective as some of the drugs now in ordinary use. Captain Stewart, who used half drachm doses in a few cases of Bronchitis and Pneumonia, reported that it is as effective as *Ipecacuanha*. Major Frenchman who used the tincture in doses varying from m. xx to 3i, reported that in 10 out of 24 cases of chronic and subacute

Bronchitis and Bronchial Catarrh, it was found efficacious and successful. It failed in 3 cases of Phthisis that he tried. In 2 out of 3 cases of Asthma it acted well. The full dose of 3i causes nausea and griping, and, therefore, had to be reduced to m xx, which was found sufficient. Major Bensley reported that the results of his trials with the drug in cases of Bronchitis, Asthma and Phthisis were not hopeful. Captain K. Prasad reported that the results of his trial in cases of acute Bronchitis were not satisfactory. Civil Surgeon Maddox reported that the drug has no useful febrifuge or antipyretic effect in fever. It possesses the expectorant properties of Ipecacuanha. Major Russell reported that in two cases he tried, it was found far inferior to Ipecacuanha. Major Macnamara reported that the drug was tried in two cases of Asthma in drachm doses, and that no good effects were noticeable. Major Powell reported that the drug was tried in 11 cases of Bronchitis in m xx doses and that the results were satisfactory, the effect being considered to be equivalent to half the quantity of Vinegar of Ipecacuanha."

The following has been reported about the use of *Calotropis procera*, (vern) *Alk, madar*, supposed by some to be a substitute for ipecacuanha—

"The following is a resumé of the trials reported to the Indigenous Drugs Committee —

Captain Childe, who used the minimum doses of the tincture, reported that the drug was found useful in acute and sub acute dysentery, but that in cases of chronic diarrhoea no good effect was observed. Lieutenant Colonel Nailer reported that in 30 grama doses the drug acted as an efficient emetic in one case. Captain Waters reported that it was tried in two cases of mild dysentery and appeared to have a slight effect. Captain K. Prasad reported that the powder is a good substitute for Ipecacuanha in dysentery and that the tincture is not so efficacious as the powder. Civil Surgeon Maddox reported that an initial dose of 5 grains of the powder first given produced violent vomiting and purging. The pulvis should be given at first in small doses gradually increased. The tincture given in 30 m doses, produced vomiting and purging. In 20 m doses it however had not that effect, the dose should be gradually increased. Lieutenant-Colonel Bartholomew reported that he tried *pulvis C. procera* in two cases of dysentery but with no satisfactory results. Major Crawford reported that the drug was tried in several cases where Ipecacuanha would otherwise have been administered and the results have not been very satisfactory. Major Macnamara reported that it was tried in a few cases but no good effects were noticeable. Assistant Surgeon Ganga Singh reported that the tincture and powder of *C. procera* have been used in Bronchitis and dysentery and have been found efficacious. Major Powell reported that the tincture has been prescribed as a tonic and stomachic for debility and impaired appetite in five cases in doses of 20 m with satisfactory results."

Bondue nut (*katkarang*) or *Cæsalpina Bonducella* has some repute as a febrifuge, and is in common use in India. It is very bitter, and in no way worth having (except that it is cheap) as a substitute for quinine. *Ipomœa hederacea*, or *kaladana*, is a well-known bazaar remedy. The resin is extremely like jalap and may probably replace it. *Andriographis paniculata* (vern *Kuyat*) can be used as a substitute for quassia or chinetta. We are not impressed by the evidence of its being as good as quinine, though it is the basis of an English "patent" preparation. As substitutes for male fern *Embelia*

Robusta and *Embelia Ribes* have been used. They are extensively sold in bazaars usually mixed with peppercorns. They are no doubt useful as a remedy for tapeworms.

THE OPIUM QUESTION IN THE PHILIPPINES

THE Commission appointed by the Government of the United States of America to examine and report on the question of the sale and control of opium in the Philippines have issued their preliminary report after a somewhat short period of inquiry. The following is a summary of their conclusions, which are supported by the Government at Washington —

Prohibition may be either immediate or progressive. Immediate prohibition is likely to lead to much suffering among habitual users of opium. Where opium has been used, therefore, progressive prohibition is considered as the more reasonable method of procedure. This should be brought about by government monopoly wherein the completest control possible under the circumstances may be attained. The revenue obtained from such monopoly should be regulated in such a way as to prove that the method aims solely at control and is not employed as a means of revenue. The definite recommendations are made that opium and the traffic therein be at once made a strict government monopoly, that at the end of three years no opium shall be imported, bought or introduced into the islands, except by the government and for medical purposes only, that the use of opium shall be prohibited to all inhabitants who are not males over twenty one years of age, that males over twenty one may be licensed to use the drug, that no one known to be an habitual user of opium shall be allowed to exercise the franchise or hold government office, and that punishment shall be meted out to those who violate the laws and regulations regarding the use of opium. All habitual users of opium, desirous of being cured, shall be admitted to the hospitals free of charge. If indigent Public smoking places shall be prohibited, and finally the cultivation of the poppy for the purpose of producing opium shall be made illegal in the Philippine Islands.

Looking at the spread of the cocaine habit in the cities of India and Burma within the last few years, we greatly fear that if the American Government succeed in avoiding the Charybdis of opium, the Filipinos will fall into the Scylla of cocaine.

MALARIA AND MOSQUITOS OF ISMAILIA

We publish the following correspondence of the question of the success or non-success of the antimosquito measures taken by Major Ronald Ross at Ismailia —

Sir,—Statements have frequently appeared recently in the press to the effect that the antimalarial measures at Ismailia, Havana, and elsewhere have not really had the success which has been attributed to them. For example, Colonel H. Hamilton, C.B., F.R.S., Honorary Surgeon to the Viceroy of India, says in the October number of the *Indian Medical Gazette*, "I know that Ismailia will at once rise to the lips of the champion of mosquito brigade operations. But the chief measures were drainage and filling up pools, and if it is claimed that the improvement effected is the result of the destruction of mosquitos, then I must say that my experience going through the Suez Canal last December leads me to doubt it. Mosquitos abounded everywhere,

and particularly in the neighbourhood of Ismailia, and I was much struck by their aggressiveness during the day—no doubt *Stegomyia*—whilst at night they made sleep impossible.”

This is an example of the kind of statement which continues to be made on the subject. Ismailia is about a mile from the Suez Canal, and the antimosquito measures carried out at Ismailia were not extended to the whole banks of the Canal, so that a ship passing through the latter might easily pick up mosquitos any where *en route*. Colonel Hamilton does not appear to have visited Ismailia itself, but permits himself to infer without hesitation that mosquitos continue to abound there, notwithstanding statements to the contrary, because he found them to exist along the Canal! In order, however, to obtain further information, I wrote to the Secretary of the Suez Canal Company on the point, and now beg to enclose his reply, which I think will serve to dispose of Colonel Hamilton's criticisms. The facts (noted by the Secretary) that the insects tend occasionally to reappear and that success can only be maintained by “une surveillance constante” are, of course, only what we must always expect. Similar statements have appeared about Havana, based apparently on facts evolved in the inner consciousness of the writers, who seem to be entirely ignorant of the able monthly reports of the Board of Health of Cuba issued by Dr Charles Finlay—I am, etc.,

LIVERPOOL,
Nov 2nd

RONALD ROSS

[TRANSLATION]

Malaria at Ismailia

Monsieur le Major,

In your letter dated the 24th of this month you have asked me what value ought to be attributed to the assertions published in the Indian press as to the re-appearance of mosquitos and malarial fever in Ismailia.

I can inform you that the sanitary campaign carried out at Ismailia continues to give the most satisfactory results.

From statistics prepared by our medical officers it appears, in fact, that from January 1st to the end of September, 1905, the total number of cases of malarial fever recognized among the agents and workmen of the company, as also among their families, only amounted to 37, and it has been recognized that all these cases are only examples of recurrence.

Further, during the year 1901, the year preceding the organization of the antimalarial campaign, the number of cases of fever observed was 1,990, in 1902 (defensive measures commenced in September) it was 1,548, in 1903 it was 214, and in 1904 it was 97.

It is true that on different occasions during this year the presence of mosquitos, *Anopheles* or *Culex*, has been recorded in the town and its environments. But owing to the attentive and permanent supervision of the habitats of these insects, and the rigorous application of proper defensive measures, their disappearance on each occasion has been rapid.

It may, therefore, be said that, in spite of the momentary appearance of mosquitos, malarial manifestations at Ismailia show a continual decrease. But this happy result can be obtained only through constant supervision (*par une surveillance constante*), by the destruction of the insects as soon as their presence is recognized and by the methodical labours of the sanitary corps. I may add that the distribution of quinine as a preventive measure is carried out at the same time with the greatest regularity.

Will you accept, Monsieur le Major, the assurance of our very distinguished consideration.

Le Secrétaire Général
Le Secrétaire de la Direction
Max Bertrand

We wish we had been favoured with Major Ross' observations on other points raised in Colonel Hamilton's suggestive paper, *eg*, the rarity of mosquitos in Quetta and the considerable prevalence of malaria at the time Colonel Hamilton referred to.

INFORMATION WANTED ABOUT HILL DIARRHOEA

We quote the following remarks on hill diarrhoea by Lt-Col Andrew Duncan, *IMS* (ret'd), and we will be much obliged if Medical Officers who have held appointments in the hills will favour us with their views (1) on the causation of hill diarrhoea and (2) its prevalence in the hills of which they have experience.

The allusion in Lt-Col Duncan's paper to the long departed Pasteur Filter Installation at Darjeeling shows that his information as regards that station is somewhat out of date. We quote his remarks—

“A more satisfactory view, should the facts on which he bases his conclusions be verified, is that of Lieut-Colonel Dyson, *IMS*. This officer, who has had a large experience in the Sanitary Department of India, both in the Punjab and in Bengal, in which latter province he was Sanitary Commissioner, drew my attention to the influence of mica in the causation of the disease. When at Netley Professor Parks drew attention to the action of mica in this respect Dyson points out that hill diarrhoea occurs in those hill resorts where the geological formation contains schist. In hill stations resting on sandstone he says the disease does not occur. Poona lies at some elevation on sandstone, but has no diarrhoea. There is very little of the disease at Murree, and there is very little mica there. There is a large amount of mica at Darjeeling, and this station suffers enormously from hill diarrhoea. There is no mica at Chungli Galli, and no hill diarrhoea. Dyson states that after the Pasteur filters were installed at Darjeeling through which the mica could not pass, the hill diarrhoea no longer troubled the station. Again, during the cutting of the Panama Canal, mica dust got down the throats of the workers there, and diarrhoea attacked them. Dyson's theory as to the sequence of events is that officers on coming up from the plains at once take more exercise, and so get more thirsty. The consequent drinking more freely to assuage the thirst causes a certain amount of congestion of the alimentary canal, mica lodges in the follicles, and diarrhoea results. If mere elevation caused the diarrhoea, why is it not prevalent in Switzerland? The treatment, as we shall see, is by corrosive sublimate. Mica causes irritation, which the intestinal germs still further increase, corrosive sublimate kills the germ. This theory of Dyson I consider to offer the best explanation of the intestinal flux yet offered, if the facts mentioned as to its absence in those hill stations where there is no mica be proved to be true.”

An editorial article in these columns for October last urges the need of a Central Scientific Library for India. It may be of interest to readers of the Gazette to hear that a similar suggestion was made over a century ago.

In the proceedings of the Calcutta Medical Board for 24th April 1788 is included a letter, dated 16th April 1788, from Asst-Surgeon John Peter Wade, suggesting that medical libraries should be formed by subscriptions from

medical officers, a large central library in Calcutta, with smaller ones at the head-quarters of each brigade. He suggests that two rupees a month from each Surgeon, and one rupee from each Asst-Surgeon, would be sufficient for the purpose. The Medical Board gave a very half-hearted support to the proposal, which does not appear to have come to anything.

If a general subscription of the amounts above suggested had been levied, it would have given about Rs 200 a month, which would not go very far in supporting four medical libraries. The books would have been available only for the officers in a few stations, Monghyr, Patna and Allahabad, the three Brigade head-quarters, and for those in Calcutta, and subscriptions would probably soon have dropped into arrear.

John Peter Wade was born in 1762, entered the Bengal Medical Service as a locally appointed Asst-Surgeon on 25th February 1782, became Surgeon on 21st October 1794, and died in Calcutta on 14th October 1802. He was a voluminous writer on medical subjects, being the author of the following works, "Select Evidences of a Successful Method of Treating Fever and Dysentery in Bengal," London, 1791, "Paper on the Prevention and Treatment of the Disorders of Seamen and Soldiers in Bengal," 1792, and "Nature and Effects of Emetics, Purgatives, Mercurials, and Low Diet, in Disorders of Bengal and Similar Latitudes," London, 1792. He also wrote a "Treatise on Fevers," which was submitted to the Governor-General, through the Medical Board, in 1788. It is entered at length in the proceedings of the Board of 29th July 1788, where it fills 52 pages of closely written manuscript, whether it was ever published we cannot say.

If the following figures are given approximately correct, they are very remarkable and show what Japan has done and what can be done in the way of the prevention of disease in armies in the field. In the late war the Japanese had 46,000 killed, 11,000 died of wounds, but only 15,300 died of sickness. What a contrast to the thousands killed by sickness in every other war since the siege of Troy.

In view of these figures it cannot be denied that the efficiency of an army depends very largely upon its medical department.

The following, which we quote from the *Edinburgh Medical Journal*, gives the gist of Behring's communication on his cure of tuberculosis. It is a different subject, and this extract makes it as clear as it is possible to make it.

"The cure of tuberculosis is to be attained by *cellular immunity*, which differs entirely from the humoral immunity conferred by an antitoxin, and is gained by the organism through its cells becoming impregnated with a substance called by Behring TC. TC exists in the bodies of tubercle bacilli, it has manifold properties, as implied in the general terms formative, fermentative,

and assimilative, it is the 'quasi vital principle' of the bacilli. In the process of immunising cattle against tuberculosis, TC combines with the tissue cells, especially those of the lymphatic germinal centres, it is the cause of the reaction to tuberculin, as well as of the acquired protection against tuberculosis. Starting from the proposition that to introduce tubercle bacilli into the human body is inadmissible, the problem which Behring set to himself was to spare the organism the labour of elaborating TC (and acquiring active immunity) by isolating TC *in vitro*, and employing it to confer passive immunity. In tubercle bacilli three groups of substances are distinguishable, of which two are highly toxic, one inert. After these have been extracted, the bacilli retain their shape and staining reaction, and are called *Rest bacilli*. These contain TC, and can be converted into an amorphous substance, which, on inoculation, impregnates the lymphatic cells of the animal, the cells themselves becoming oxyphile in the process, while parallel with this metamorphosis immunity develops. These observations have so far been limited to animal experiment, and it only remains to add, in order to complete the description of TC, that it possesses the curious property of evoking tubercular granulations, which, however, never caseate or soften. This is the tenor of Behring's communication, the peroration appealing for a fair trial of the remedy was scarcely needed from him to whom the world owes antitoxin. Surely TC will not require, as that did, to wait four years for a Roux to test its curative action."

FROM a letter sent by E. H. Ross and G. M. Levic, apparently Surgeons, Royal Navy, it would appear that the dissemination of Malta fever by goat's milk is not accepted by all.

The above gentlemen write "We have on several occasions and in common with several non-immunes drank water and goat's milk containing the micrococcus in large numbers, and are now convinced that Malta fever is not conveyed by any of these means. So confident are we of this that we have recently offered to place ourselves at the disposal of the Mediterranean Fever Commission in order to undertake any experiment which may be suggested."

We have offered to drink the naturally infected goat's milk, in order that this mode of transmission may be definitely settled, and, if successful, the disease prevented. In conclusion, we would point out that since the discovery of the micrococcus in goat's milk, the disease is as prevalent as ever, notwithstanding the fact that the milk has been carefully sterilised."

We may also refer to the point we raised when discussing this question (*I M G*, Nov 1905, p 432), that children who drink milk very largely are by no means specially liable to Malta fever.

We note in the *R. A. M. C. Journal*, November, a description by Major Glen Allen, *R. A. M. C.*, of a portable steriliser for excreta. We fail to see where it is an improvement on the "germ incinerator" in use in all parts in Bengal for many years past.

In the same *Journal* (p 639), we see a brief note on a case of *bilharzia hæmatobia* which

was found, in Mr Berkeley Hills' wards at University College, London in 1887. The patient was a woman, who had never been out of England. The ova were recognised by Sir Victor Horsley, then Professor of Pathology. It is a curious case, and as the parasite is not supposed to flourish in England, it is well worth putting on record.

IN THE JOURNAL A M A for October 23rd Dr H D Bloombeigh and J M Coffin describe a short remittent fever in the Philippines, in the red blood cells of cases, of which a mobile hæmocytozoon "entirely different from the hæmamoeba of Laveran." The organism is mobile, and our authors think it identical with one described by Dr H M Smith of U S Army, in the Surgeon-General's Report for 1904.

TIZZONI AND BONGIOVANIN (Centralblatt f. Bakt., 1905, p. 399) describe a treatment of hydrophobia by means of radium, said to be successful.

THE November number of the *Indian Public Health and Municipal Journal* publishes a useful leaflet on measures to popularise inoculation against plague, which we commend to our readers.

THE report of the Bombay Health Officer for third quarter of 1905 contains much useful information on rats and plague.

DRS WILLIAM H PARK AND CHARLES BOLDUAN, New York City, stated that out of fifteen hundred cases of cerebro spinal fever in New York City, two hundred were in direct contact with other cases, and many showed evidence of infection from other cases. These two hundred represented eighty-eight families. Bacteriologic examinations revealed that about half the cases of meningitis had abundant meningococci in the nasal cavity during the first two weeks of the disease, and that the nasal cavities of five attendants were badly infected. The conclusion is drawn that the meningococci are spread by the discharges from the nose and mouth of the sick and those in immediate contact with them.

YVON writes to the *Gaz des Hop* to the effect that a mixture of fat prevents the saliva from dissolving quinine and thus disguises its taste in the mouth. He mixes from 15 to 20 per cent olive or vaselin oil with the quinine after dissolving the oil in ether. The mixture is then flavoured with peppermint or some other aromatic oil, the ether is allowed to evaporate, and the mixture is taken with water or some other fluid.

Reviews

Gall-stones and their Surgical Treatment —
By B G A MOYNIHAN, M.S. (Lond.), F.R.C.S.
W B Saunders & Co., Philadelphia, New York, London.

GALL-STONES have entered so much into the surgical field of progress in recent years that a clear and masterly description of the symptoms, treatment, etc., of the disease and its complications is well worthy of perusal.

The first few chapters deal with the anatomy, varieties and methods of formation of gall-stones and the relation of micro-organisms to this process and the incidence in relation to the age and sex of the patient.

A succeeding chapter describes the general pathology, and gives a very clear and succinct account of the many changes which occur as a consequence of the presence of gall-stones.

Later the symptoms and signs are fully described and the differential diagnosis of the particular situation in the biliary tract which the stone may happen to occupy.

Two or three chapters are devoted to the complications which may occur, including intestinal obstruction when caused by the impaction of a stone.

The account of the preparation of the patient for the operation and the methods for cleansing the hands of the surgeon and other details is clear and concise. The author is strongly in favour of the use of gloves, avoids marine sponges, and for ligatures uses catgut prepared by the ammonium sulphate method and sometimes Pagenstecker's celluloid thread when a stronger ligature is required. As regards drainage, speaking generally, it is only used in septic cases and the form preferred is either the split rubber tube with gauze wick or the cigarette drain.

In the after treatment morphia is avoided but a small dose may be given on the 2nd night if the patient is in a satisfactory condition. The patient after return to bed is propped up with pillows and if old and feeble is allowed to get up in three or four days. Mayo Robson's incision is used and it is sutured in layers, the peritoneum and posterior layer of the rectus sheath being included in a continuous catgut suture, and then the same suture is carried along the anterior layer of the sheath of the muscle and also includes the muscle itself, in some cases silkworm gut sutures passing through all the structures of the abdominal wall except the peritoneum are introduced as well. The various operations are all carefully described. The author is strongly disposed to advocate cholecystectomy in preference to cholecystotomy, the advantages being that the chief source of the disease is removed and that it prevents in great

measure a recurrence of the stones or of the inflammation caused by them, that growths in the gall bladder or adhesions around it are subsequently impossible, and that if drainage is not required the wound will heal by first intention. Illustrative cases are introduced into the text, and they are not so many that their perusal becomes wearisome. There are numerous illustrations which are excellent, and the printing and general appearance of the book is very good.

Atlas and Epitome of General Pathologic Histology—By DOCENT DR HERMANN DURCK of the Pathologic Institute, Munich. Authorised translation from the German. Edited by Ludvig Hektoen, M.D., Professor of Pathology, in Rush Medical College, Chicago. 176 Colored Illustrations on 80 Lithographic Plates and 35 Figures in Black and Colors, 350 pages in text. Philadelphia, New York, London: W. B. Saunders & Co., Publishers.

EVERY one recognises the importance of a thorough knowledge of histological processes for the proper understanding of pathological alterations, and that it is only by a painstaking study of the minute changes in the elementary building-stones of the organism that the ability to associate definite conceptions with the technical terms of General Pathology, is acquired. Of course it is true that the interpretation of Pathological processes has undergone very great changes in the course of time, but thanks to the untiring efforts of investigators, especially along experimental lines, our conceptions have gained very much in scope and definiteness. This atlas and epitome gives the accepted views in regard to the significance of pathological processes. The plan of this new work obviously forbids an exhaustive, critical presentation of diverging views, although this divergence of opinion may be quite justifiable. The author has, therefore, in most cases, only cursorily referred to mere theories whether old or new, believing that it is more to the learner's advantage to be supplied with as true and objective a representation as possible of pathological processes in general, than to have a number of conflicting theories expounded.

In keeping with the nature of the subject a very full and complete account of morbid growths has been given, the text matter occupying almost half of the total number of pages, the whole being most beautifully illustrated. All the illustrations have been made from original specimens without combining different microscopic fields, and extraordinary care has been taken to reproduce them as accurately as possible, in many cases as many as twenty-six different colours being made use of.

We consider that the illustrations are as nearly perfect as it is possible to obtain, and they have certainly never been surpassed in the beauty and clearness of their production. The value of illustration in a work on general pathology can-

not be exaggerated, and these numerous plates enhance the merit of this book immensely.

In editing the volume Dr Hektoen has incorporated much new and useful matter in the text.

We have not the slightest hesitation in thoroughly recommending this atlas and epitome to the profession at large as being one of the best, most readable and above all the most beautifully illustrated atlas on general pathology at present to be obtained.

The publishers W. B. Saunders & Co. have added to their already high reputation by the way in which they have produced the volume.

Health and Disease in Relation to Marriage

—By SENATOR AND KAMINER. Vol. II, Royal 8vo, pp 481 to 1257. Messrs. Rebman, Ltd. (Price of complete work £1-10s.)

THIS is the Second Volume of a series of articles by various German writers, the first of which was noticed in these columns last May. The Editors, Professor Senator and Dr Kaminer, have succeeded, in every way, in making it as useful and attractive as the first volume, and Dr Dulberg, in his translation of the work into English, has continued to keep in view the importance of rendering the text readily intelligible to lay as well as professional readers. The first two chapters of the volume (XIV and XV of the work), by Neisser and Ledermann, deal with venereal diseases in the relationship implied by the title, and the next six, respectively, with skin diseases (Ledermann), diseases of the organs of locomotion (Hoffa), eye diseases (Abelsdorff), diseases and deformities of the lower uro-genital organs (Posner), diseases of women (Blumreich), and nervous diseases (Eulenberg). In the remaining chapters are presented, in the same relationship, the views of Mendel, Moll, Leppman, Placzek and Ebertadt upon insanity, perverse sexual sensations, occupational injuries and drug habits, medico-professional secrecy, and the economic importance of sanitary conditions.

As in the first volume, so in this, there is a ready and reliable answer at hand to the many questions with which the medical practitioner is apt to be invaded in the above connections, by those aspirants to matrimony who also appreciate the great importance of eugenesis, a real debt of gratitude is, therefore, due to the editors who have so carefully collected and collated the valuable monographs, and presented them in a form which ensures for the work a popular as well as a professional value. The publishers are also to be congratulated upon the excellence of the type, and the handsome appearance of the volumes.

Health Resorts of Europe.—By THOMAS LINN, M.D. London, Health Resorts' Bureau, 27, Chancery Lane, W.C.

THIS useful and popular guide to the mineral springs, climatic, mountain and seaside health

resorts of Europe has now reached its thirteenth edition. It is edited by Dr A C Glynn Grylls, and contains an enormous amount of useful information in small bulk.

The introductory hints are useful, and deal with a variety of subjects, from the choice of a watering-place to tips to servants. Another section deals with the various kinds of 'cures,' whether hydropathy, massage, or "the milk and whey cure." A therapeutic index is of doubtful utility, except in so far as it mentions the names of Spas suited to various complaints.

Then comes an account of the various resorts in Europe. A useful appendix is added. The little volume can be strongly recommended to all those needing information on the subject with which it deals.

The Edinburgh Stereoscopic Atlas of Anatomy.—Edited by DAVID WATKINSON, M.A., M.D., F.R.C.S.F., F.R.S.F. Published by T C & E C JACK, Edinburgh and London.

THIS work consists of a collection of stereoscopic photographs of dissections of all portions of the body, and of the separate viscera. It is published in 5 sections, each containing 50 stereographs, at the price of £1-5s per section. Each section is put up in a neat cloth case, and the price includes a suitable stereoscope for use with the plates.

Sections 1 and 2 are now in our hands. The former contains 50 stereographs of the thorax and brain, the latter 50 of the abdomen, leaving the female pelvis to be dealt with in future sections.

The stereographs are all beautifully executed by the Rotary Co., and are mounted on serviceable thick cards, on which has been printed a short clear and precise description of each dissection or viscus. When viewed in the stereoscope, each structure stands visibly out, and the "relations" leave nothing to the imagination. A beautiful series of dissections has been used for the purpose of this collection, and care has been taken to secure examples, as typical as possible. The only criticism to be made, is that, perhaps, through the use of lenses of short focus, or possibly owing to the separation of the lenses of the camera being too great, the apparent distances between the objects from front to back, as seen in the stereoscope, is too great. In consequence of this the cavities all appear deeper than in nature. This in no wise detracts from the use of the collection as a series of very useful portable diagrams, on which much labour and ingenuity has been bestowed. The collection should be very useful to those who wish to brush up their anatomy in general, or that of a special part. It will not replace a course of dissection, but should be of great use to students and practitioners. The collection should be in the library of every medical school.

Current Literature.

I

SPECIAL SENSES

The Extraction of Uncomplicated Immature Senile Cataract.—In the *Journal of the American Medical Association* of 23rd September 1906, appears a paper on this subject that was read by Dr Bulson, Jr., of Fort Wayne, Ind., in the section on Ophthalmology of the American Medical Association, at its 56th Annual Session in July last, together with the discussion in it that followed. Reasons are adduced for supposing that eyes in which cataract develops are diseased eyes, and that there is no such thing as primary cataract. The frequency with which fundus changes (choroidal inflammation and vitreous changes) are found when incipient cataract is examined ophthalmoscopically, is an argument in favour of this view. The author holds that where such eyes have not been so examined and no disease is found after extraction, this is no proof that it did not exist before. He regards it as probable, in fact, that it did exist in a mild form and that the enforced rest led to its subsiding. A recognition of these diseased processes as causal factors may lead us to hope for the discovery of preventive measures in time. Should disturbance in the uveal tract exist, the extraction of the unripe cataract is contraindicated. Indeed, in such cases the enforced rest occasioned by the increasing opacity of the lens is really a measure required to produce a subsidence of the usual disturbance, and the beneficial effects of which would be more or less destroyed by extraction of the protecting lens. Such cases are, therefore, excluded from consideration in deciding whether immature cataracts should be extracted. Risley to whom we are indebted for extensive study of this subject, says of them, "a long history of asthenopia preceding the failure of vision from incipient or immature cataract, a more or less discoloured iris, sluggish in reaction to light and shade and to mydriatics, injected conjunctiva and swollen cornea, associated with headache, furnish a group of symptoms which point to the existence of choroidal disease."

Prof Hirschberg was one of the first to advocate extraction of unripe cataracts, and Schweigger in 1890, recommended that senile cataract should be extracted in all persons over fifty years of age, even if a greater or less portion of the lens were still clear, should the patient's vision be seriously interfered with. Dr Bulson considered the factors influencing the decision to operate on an unripe cataract as follows. If the fellow eye has sight enough for the patient's needs, extraction is not warranted. If both eyes have immature cataract, operation depends on the speed with which ripening is going on. If this is rapid, it is advisable to await maturity more especially if the ripening is associated with much swelling of the lens with shallow anterior chamber and sluggish iris. These cases of ripening rapidly, are difficult to operate on and have such tenacious cortex that subsequent inflammation of the already irritated iris, not uncommonly follows. If the ripening is slow or, as it sometimes is, almost stationary, operation is more to be recommended. It is for such cases that the various procedures for artificial ripening have been introduced, but the author agrees with Weeks "that the operation (apparently he refers, to preliminary iridectomy with or without trituration of the lens) for hastening the maturation of the lens does not sufficiently increase the facility of removal of the cataract to warrant the extra risk and trouble to the patient." In his opinion in cases of stationary immature senile cataract "where apart from the semi transparency of the lenses, there are no contraindications, and the patient has been made acquainted with the possibilities as to secondary cataract requiring decision and mild post-operative inflammation, with delayed recovery," operation may be performed when

vision has been reduced, so that ordinary type can no longer be read. Pleasure and business are then interfered with, and the deprivation, if long continued usually has a more or less detrimental effect on the physical or mental condition of the individual. Successful results from the extraction of unripe cataracts must come from the adoption of methods which make it possible to remove the whole of the cortex with a minimum amount of trauma and subsequent inflammatory reaction. This result may be brought about, in the opinion of the author, by making (1) a large corneal section, not less than two fifths of the corneal circumference, (2) a fairly wide incision extending to the ciliary border, (3) a large opening in the capsule by two incisions at right angles to each other, (4) gentle irrigation of the anterior chambers with sterile normal saline solution if much cortex remains after removal of the nucleus, (5) early and free use of atropin, and (6) use of diouin after the corneal wound has closed to promote resorption of lens debris. He admits that in spite of proper care iritis is the rule and attributes it to irrigation trauma and to irritation produced by swelling of the remaining soft lens matter. Admitting that the immediate results of extraction of immature senile cataracts are not as good as in extraction of mature cataracts, the ultimate results are claimed to be equally as good. The iritis subsides, dissection may be performed, if necessary, and even with more protracted recovery, the patient is usually favoured with restoration of vision much sooner than could possibly have been expected had maturity been awaited, while his general health is also better than it would have been after long enforced inactivity and mental disquietude, such as would have been forced upon him had he waited for complete opacification.

The author relates his results in 25 cases of immature senile uncomplicated cataract operated on by the combined method and nearly all irrigated. Fifteen required secondary operations though, for various reasons, only nine had them. The vision became in eight cases 20/20, in ten 20/30, in two 20/40, in three 20/70, and in two 20/200.

With a view to obtaining the opinions of other surgeons the author circulated enquiries to a large number of ophthalmic surgeons in the States and he gives their replies in some detail. Of 65 who responded, 25 have no hesitation in attempting extraction of uncomplicated immature senile cataracts, 22 perform the operation with some hesitancy, but apparently not from choice, 9 have serious objections to the practice, but in certain apparently urgent conditions take what they term the 'risk' of the operation, and eight do not extract such lenses at all because they consider the final results bad in the majority of instances. Thirty of them use irrigation, and with four exceptions physiologic salt solution is preferred, nearly all report that while secondary cataracts, and mild post operative inflammations, with slow recovery, are more frequent than in extraction of mature cataracts, they almost without exception report as favourable, ultimate visual results as in mature cases.

The opinions of the different surgeons are given fairly fully, and form interesting reading, not always, if one reads between the lines, so favourable to the practice as appears at first sight. They cannot, however, be abstracted here. In the discussion which followed the reading of the paper, Professor Hirschberg of Berlin, Drs. Risley and Posey of Philadelphia and others took part, and the discussion was generally in favour of the procedure.

F P M

II

FOREIGN EXTRACTS

A method of carrying out the radical Cure of Inguinal Hernia without buried sutures — Jonnesco has treated several cases thus —

The skin incision begins at the ant sup spine, and runs parallel with Poupart's ligament for 3 4 inches,

the superficial vessels being divided between pressure forceps. A scissors is passed alongside the index-finger, which has been pushed into the canal, and with it the tendon of the ext obl is cut, the divided parts being each caught with a pair of catch forceps. The cord is then isolated, and the sac is drawn down and opened, and its contents are returned into the belly. The neck of the sac is then drawn still further down and two pressure forceps are snapped on it at 1 cm distance from each other, and the sac divided between these. Then two—or if the wound be a long one, three—sutures of silver wire are passed thus—through the skin, sac-neck, and obl int and transv muscles, taking in a portion of these latter transversely, and then passing out near and below the point of entrance, the arcus Fallopi being held up by the left index-finger to admit of the suture passing under it. Between the wire sutures are set sutures of silkworm gut which are passed in figure of eight thus through the aponeurosis of the obl ext of the lower side of the wound, then through the obl int and transv of the upper side, then through the same muscles of the lower side, and then through the obl ext of the upper side of the wound. The wire sutures are drawn tight over a roll of gauze. The superficial sutures are removed on the sixth or seventh day, the wire sutures being left till the 12th day, when they are removed by being snipped through on one side close to the skin, and then slowly drawn out while the roll of gauze is pressed firmly against the skin, so as to avoid disturbance of the parts and pain — (*Revue de Chirurgie*, May 1905, ref in *Muenchener Med Woch* No 40 of 1905)

The Spirochaete pallida of Schaudinn and its staining.—Karl Herxheimer of Frankfurt on Maine has found that the Giemsa stain is not so effective as that which he has obtained thus—a hot saturated solution of Gentian violet (10% in water) is prepared and allowed to cool for two hours and then filtered. The preparation for examination is taken from the interior of an eruption spot (Suberheim and Tomaszewski find that the matter scraped from an ulceration is sufficient—Trans), fixed on the slide or cover glass with alcohol and stained by being sprinkled with a few drops of the solution, which is after 15 minutes removed by washing in water. The process of staining may be greatly hastened by the use of heat, but then the number of spirochaetæ stained is smaller. By means of the Gentian violet there are better brought into view certain bodies which he (1) in the bodies of the S, (2) near and attached to these, and (3) near, but quite separate from these. Herxheimer thinks that these bodies may be, in their order, blepharoplasts, nuclei, and centrosomes, and is now engaged in verifying this hypothesis — (*Muenchener Med Woch* No 39 of 1905)

The Treatment of Syphilis —Prof V Zeissl of Vienna recommends that no mercurial treatment be used before general symptoms have set in, because in his experience such "abortive" treatment has the effect of rendering the patient more liable to gummata of the skin and nervous system. He has also found that it is advisable to use salts of mercury which are rapidly excreted by the organism, and to prescribe a diet of albuminous substances. Alcohol, he thinks, favours the occurrence of eruptions in the mouth and throat — (*Ibid*)

The Action of the Rontgen Rays, and of Radium on the trypanosomata of Nagana —

In the Archiv für Schiffs u Tropenhygiene recently, Mense of Cassel suggested that, as the Rontgen rays had been proved to have a destructive action on spermatozoa, they might be found to be of service in cases of sleeping sickness, on the assumption that in this disease the trypanosomata are chiefly to be found in the peripheral vessels and the subcutaneous lymphatic glands. Acting on this suggestion, de Nobele and Goebels have

experimented with the trypanosome of Nagana, thus — the blood of an infected guinea pig was taken and used (1) defibrinated without the addition of any liquid, (2) diluted with dog serum, (3) diluted with a solution of glucose, these two liquids having been found to be very favourable towards the preservation of the parasites. These preparations of blood were exposed to the action of the Röntgen rays, in hanging drops and in vessels, the rays being derived from a Hirschmann coil of 45 cm spark, acting on a Monopol tube at 5 cm from the preparation, the rays being of the seventh degree of Benoist's radiochromometric scale. The exposure was of two hours' duration, the parasites having in this time absorbed twice the maximum tolerable dose for the skin. The result was that no appreciable difference between the exposed and the control preparations could be detected.

Then similar preparations were exposed for 12 hours to the rays of 5 mμ of pure radium bromide, contained in a glass tube the result being similarly negative. So much for the action of these rays on the parasite *in vitro*. The authors intend to report the result of further experiments soon — (*Ann de la Soc de Med de Gand*, 1905, p 216)

A case of poisoning by phenacetin —

Meurice of Ghent saw recently a case in which 11 grammes (169.75 grains) of phenacetin had been ingested within 20 hours. The patient, a woman aged 48 presented the following symptoms — great weakness, collapse, marked tendency to syncope, shallow breathing, precordial anxiety, nausea, marked cyanosis of the lips, cheeks, gums, hands and feet, marked chilliness of the limbs with a yellowish grey coloration of the skin, which latter became much more marked (methæmoglobinæmia). The treatment which was ultimately successful, consisted in the exhibition of caffeine (one gramme daily) and bicarbonate of soda (5 grammes daily) with, at one time when syncope was very urgent, one centigramme of camphor, dissolved in olive oil, hypodermically — (*Ibid*)

The Prophylaxis of venereal Diseases —

The Austrian Legation guard at Peking had suffered severely from indiscriminate relations with the Chinese prostitutes during the three years of its stay in Peking (40% having had gonorrhœa 20% soft chancre, and 10% syphilis), when Gustav Tandler arrived there. He managed to have the following measures enforced with the result that of 1560 men so treated only 25 contracted gonorrhœa. Within at the outside five hours after sexual congress the soldier had to make water wash his organ with a 1—1,000 solution of corrosive sublimate, and insert and retain for two minutes in the urethra 1 cc of a 20% solution of protargol in glycerine, the nozzle of the syringe being introduced for 2 cm into the urethra — (*Verb sap Trans*) (*Der Militärarzt* No 7—Beilage zur Wiener med Wochenschrift, No 15 of 1905)

The Question of diet in cases of Epilepsy.

In these days when every layman talks glibly of uric acid and the teachings of the so called vegetarians are held to be unassailable it may be of interest to note that no less authority than Jules Voisin, Roger Voisin and Novero have found, by experiments carried out on ten girls, of whom eight were epileptics, that *true* vegetarian diet is easily borne for a month by children, but that it has not the slightest effect on the number or character of the epileptic seizures — (*Revue mensuelle des mal de l'enfance* June 1905)

W D S

III

OBSIETRICS AND MIDWIFERY

The Therapeutical Action of Aspirin —

Chidichimo (*Ann di ostet.* Milano, April 1905), gives the results of his experience with this drug. He

finds it as salicylic acid in the urine and synovial fluids, but not in the milk of women, to whom it has been administered. The drug renders uterine contractions less severe, and is valuable in dysmenorrhœa of nervous uterine origin, or from diseased appendages. It is useful in painful menstruation of young women, administered before the occurrence of menstruation — (*Edin Med Journal*, August 1905)

Rupture of the uterus — Valenta (*Centralbl f Gynak*, Leipzig, 1906, No 6) reports fourteen cases of complete rupture of the uterus in 1,350 labours. Of eight cases operated on three recovered. Valenta holds that if the child is still in the uterus it should be delivered by the natural passages, but if it has passed entirely into the abdomen, immediate laparotomy is the best treatment. In five cases he performed supra vaginal hysterectomy with extraperitoneal treatment of the stump which is the quickest, and, he thinks, the safest way of dealing with the ruptured uterus. He sutured the laceration in one case, and in two others extirpated the uterus — (*Edin Med Journal*, August 1905)

Purgation before and after operation

— Stone (*Am Med Phila*, 1905, February 25) believes that excessive purgation should be restricted, as it is enervating to the general system. It produces great irritation of the mucous membrane of the bowel, and adds to the dangers of ileus and paresis. Purgatives have little effect in limiting the amount of extra peritoneal fluids. In place of calomel and saline purgation, bland evacuants, such as castor oil, are to be preferred before abdominal section. After operation, enemata should be given to relieve distension, and favour peristalsis in a downward direction, laxatives being given later as required — (*Edin Med Journal*, September 1905)

Puerperal Tetanus — Roderer (*Am Med Phila*, 1905, March) reports a case with recovery. The symptoms appeared ten days after delivery. From this time onwards to the fourteenth day she had tonic spasms, clonic spasms then commenced and lasted till the twenty seventh, during which time she had at least 1500 convulsions. Antitoxin was administered on thirty-two occasions, in all 680 cc being given — (*Edin Med Journal* September 1905)

Experimental Hydramnion in Nephritis.

— Bibergehl (*Berl Klin Wchnschr*, 1905, April), experimented on two dogs, producing nephritis by the administration of drugs, and then examining mother and foetus as to the presence of ascites. In both cases nephritis was produced in the mother, changes in the foetal kidneys, ascites and hydrothorax in the mother, and a small amount of effusion in the foetuses. In both there was an increase of amniotic fluid. The author, therefore, concludes that nephritis may be one cause of hydramnion, as well as producing effusions into the foetal tissues — (*Edin Med Journal*, September 1905)

Vaginal Ovariectomy — Buerger (*Central bl f Gynak*, Leipzig, 1905, No 17), reports on 110 cases, with one death. He recommends that during pregnancy the vaginal route should not be employed, on account of the greater tendency to bring on abortion, as compared with abdominal section. In the same journal, Werner reports the mortality after operations for ovarian tumours as 35 per cent, but the majority of deaths were due to malignancy, the mortality of which was 14.16 per cent, for benign tumours only 1.3 per cent, and in uncomplicated cases less than 1 per cent. He recommends vaginal ovariectomy on account of its being shorter, simpler, and followed by more rapid convalescence. It was contra indicated, however, in malignant tumours, extensive adhesions, and solid tumours of large size. As regards technique he prefers posterior colpotomy as offering no risk of injuring the bladder — (*Edin Med Journal*, September 1905)

J F R

ANNUAL REPORTS

PUNJAB HOSPITALS REPORTS

THIS report though dated 15th May, and published with the Government Resolution on 5th August, only reached our table late in October 1905

This report is submitted by Colonel T McConaghey, I M S, the recent Inspector General of Civil Hospitals in the Punjab. The annual statements have been considerably revised. It is satisfactory to find that in spite of the terrible epidemic of plague in the Punjab, there has been no falling-off in the popularity of the in-door dispensaries, though the out door attendance is somewhat less than the previous year's record. The following opinion of a Civil Surgeon shows that even a terrible plague epidemic has a good side —

"And finally the prevalence of plague in a place actually reduces the number of many coughs, colds, cases of indigestion, diarrhoea, &c, owing to many people living out in camp. This entails a great deal of compulsory physical exercise and breathing of pure air. Many a man has had to acknowledge that open air life, even in the winter, instead of giving rheumatism and pneumonia, has acted like a charm, and brought with it good health."

There is considerable overcrowding in some of the hospitals, as in the Jullundur Hospital, there was an average of 92 in patients with only 54 beds, and a similar defect existed in the Mayo Hospital, Lahore. We note that a new heading for malignant new growths appears, and 438 cases of carcinoma and 251 of sarcoma were treated in the dispensaries. The following table gives the number of surgical operations done during 3 years in the chief hospitals —

Jullundur	4,938	4,578	5,775
Mayo Hospital, Lahore	3,758	3,957	4,133
Gujranwala	1,785	1,912	2,457
Simla Ripon Hospital	2,077	2,074	2,338
Rawalpindi	2,546	1,934	2,236
Ferozepore	1,762	1,687	2,109
Hoshiarpur	1,313	2,042	2,017
Amritsar	2,406	2,265	1,995
Sialkot	1,640	2,183	1,893
Ambala	1,492	1,681	1,816

As usual Jullundur leads and with no less than 2,132 operations for cataract, followed by Gujraon with 729, and the Mayo with 664. The Multan hospital has the highest number of stone operations, viz, 206, Rijnanpur with 139, and the Mayo 120.

The following table gives the total number of operations for cataract in the triennium —

	1902	1903	1904
Number	5,700	5,881	7,171
Cures	4,683	4,841	6,089
Percentage of cures of patients	92.33	92.45	93.80

The figures for 1904 are satisfactory in every way, not only is the number of operations the largest on record, but the percentage of successes has risen to the high figure of 93.80. It may be truly said that failures are becoming the exception. When they do occur it is in most of the cases, not the fault of the operator. The field for this class of operation must still be immense, but with increasing confidence, such as these figures must inspire, greater results will in future years be obtained.

As in other years we quote the following table as to operations for stone in the bladder —

Colonel McConaghey mentions the following principal operators —

Major H Smith	Civil Surgeon, Jullundur
Major E V Hugo	Civil Surgeon, Sialkot
Captain D H F Cowin	Civil Surgeon, Karnal and Jullundur
Lt Col F F Perry	Principal, Medical College, Lahore
Major R Heard	Civil Surgeon, Simla and Ludhiana
Major A W T Buist	Civil Surgeon, Amritsar and Jhelum
Major D M Davidson	Civil Surgeon, Multan

Among the Assistant Surgeons may be mentioned Lala Sri Ram, Gujraon Dispensary, Lala Shankar Das, House Surgeon, Ophthalmic Ward of the Mayo Hospital, Lahore, Lala Khazan Chind, Civil Hospital, Amritsar, and Lala Rampi Lal, Assistant Surgeon, Hissar.

The above is a magnificent record of good surgical work, and would make most London Surgeons "gape and stare."

PUNJAB VACCINATION REPORT

THIS report submitted by Lt. Col Bamber, I M S, D P H, the Sanitary Commissioner, on 1st July and reviewed by Government on 5th August, only reached our table in the end of October.

Lt. Col Bamber was in charge of the department throughout the year, with Capt W F Harvey I M S, as Deputy Sanitary Commissioner. When Capt. Harvey went to work at the Pasteur Institute (of which he is now Director), Capt W H C Foster, I M S, acted as Deputy Sanitary Commissioner. The average cost for each successful operation was only 2 annas four pies. It is very satisfactory to learn that in spite of the terrible prevalence of plague the work of vaccination against small-pox was pushed on successfully.

Of the primary vaccination 53 per cent were in male children and 47 in female children, but of the re vaccinations only 30 per cent were of girls. This is easily understood and any increase in the number of girls re vaccinated will largely depend on the tact of the vaccinators.

The most noticeable feature of the returns for 1904-1905, is the great increase in re vaccination. This is the result of the Sanitary Commissioner's orders to direct the staff to re vaccinate one eighth of the district each year. This has been done with marked success in many districts, but the fear of inoculations against plague prevented any extension of re vaccination in Rohtak and Gujraon districts.

Primary vaccinations were reported successful in over 99 per cent. of cases and re vaccination shows the high figure of 81 per cent, cases of "unknown" result were only 2.6 in primary vaccination, and as high as 15 per cent in cases of re vaccination. The Native States in the Punjab manage their own vaccination work, but it is satisfactory to see considerable progress in many of them, as, for example, Patiala, thanks to the energy of Major C H James, I M S, Capt. W F Harvey, I M S worked very hard to produce good lymph at the vaccine depot, and since January 1905 glycerinated lymph freed by chloroform from all non sporing bacteria has been used. This is a marked advance.

THE MADRAS VACCINATION REPORT, 1904-05

THIS report combines an account of the working of the Vaccination Department with a sketch of the work done by the King Institute of Preventive Medicine. In the forwarding letter Colonel W G King, I M S, the then Sanitary Commissioner of Madras, shows clearly and in an interesting

Year	CUTTING						CRUSHING			Deaths	Percentage of deaths, including cases remaining from previous year
	Suprapubic	Lateral perineal	Median	Vaginal	On female by dilatation	Total	Lithotripsy	Litholapaxy	Total		
1902	11	150	13	7		181	5	1,849	1,854	{ From cutting 16 From crushing 47	8.64 2.52
1903	11	171	20	5		207	6	1,897	1,903	{ From cutting 21 From crushing 52	9.85 2.71
1904	29	179	9	2		219	5	1,773	1,778	{ From cutting 22 From crushing 53	9.82 2.97

manner the many difficulties which had to be overcome before the Vaccine section of the King Institute was in full and efficient working order. The report on vaccination is submitted by Capt F. F. Elwes, M.B., I.M.S., the acting Professor of Hygiene and Inspector of Vaccination. The staff now consists of 33 first class Deputy Inspectors on Rs 60-70 pay, 32 second class on Rs 40, 234 first class vaccinators on Rs 15 to Rs 20, 445 second class vaccinators on Rs. 10 to Rs 12 and 144 probationers on Rs 5 to Rs 7 pay, or a total of 873 vaccinators. In the year, over 1,406,000 primary and 78,280 re vaccinations were done, the ratio of success being 86.8 per cent.

DURING the year "compulsory" vaccination was introduced into several more unions, but the word "compulsory" is hardly applicable "owing to the extreme leniency of the Magistracy," a condition of affairs not unknown also in other provinces.

THE lymph is now supplied from the vaccine section of the King Institute, and in vialence, in bacterial purity and in preservation, the lymph was excellent. The vehicle used is chiefly lanoline, which in Madras is preferred to glycerine. In England tubes of glycerine lymph not used within seven days should be returned to the Depot, whereas in spite of the great heat in Madras the lymph is only issued fortnightly, yet it is efficacious. On the question of bacterial purity Col King writes as follows —

"The question of elimination of 'extraneous organisms' has not been lost sight of, although I am by no means disposed to regard the subject with the extravagant zeal exhibited by certain European authorities. It has been shown by Dr. Srinivasa Rao, Bacteriologist to the Mysore Government, that lanoline has a distinct inimical influence upon such organisms, although this has been contested by other bacteriologists. But the whole subject, as stated by the Superintendent, in his paragraph 13, will be thoroughly threshed out. Certainly, the principles adopted in the Institute of attempting in all matters, high bacterial cleanliness seems to me what should be the leading feature both in the cultivation and preservation of vaccine. In this connection, I may point to a simple experiment conducted by Lieutenant Christophers at my request as to results of using a loopful of sterile water and glycerine mixture (the usual 50 per cent. employed for preservation) on the aim in six mock vaccination operations. Full precautions were taken as to preliminary cleansing of the arm. Yet, from the small portions recovered in each case there were grown from 32 colonies to 21,300 colonies of microbes. When it is remembered that in the elimination of 'extraneous organisms' it is not anticipated that the spore bearing will be destroyed, the whole process seems to me to require considerably less enthusiasm and better elucidation of its actual merits. In this connection, I may state that the Institute offered each district the choice of glycerine or lanoline, and that, without exception, they chose lanoline. There is, however, no intention of limiting the production to any form. Local authorities are at liberty to obtain their vaccine preserved by any recognized method."

LIEUTENANT CHRISTOPHERS, I.M.S., submits the short report on the work of the King Institute. We note that 27 milligrammes of Paste was used per case for vaccination, and this has been found sufficient. The following extract from the report shows the amount of useful work done by this Institute —

"The first step taken was the institution of a department for reporting upon specimens sent in by medical men and others from the districts. In the earlier months of the year the number of such specimens received was not above 3 per mensem. Believing that the Institute could be made of much greater utility to medical officers than they were aware of, a pamphlet, entitled 'Aims and Objects of the King Institute of Preventive Medicine,' setting forth what it was hoped might be done on these lines, was circulated. The effect of this pamphlet was to raise the number of specimens received to an average of about 60 per mensem. In all 459 reports dealing with over 600 specimens have been sent out. The specimens have embraced a considerable variety of material and may be classified as follows — 84 specimens of blood for report as to the presence or absence of malarial parasites or other protozoal organisms, 191 specimens for the diagnosis of plague, of which 9 were from suspected buboes, 26 of sputa of suspected pneumonic cases, 57 of blood, 14 of smears of liver or spleen in fatal cases, 102 specimens relating to plague in rats, 27 specimens of sputum or other material for the detection of the tubercle bacillus, in connection with which 4 guinea pigs were inoculated, 16 specimens of suspected rabid material, in connection with which 5 *post mortem* on dogs were undertaken, and 16 rabbits inoculated, 47 specimens for the Widal reaction, 53 specimens of tumours or other tissues for sectioning. In this case a specimen stained and mounted was always furnished to the officer concerned for information. 102 specimens of mosquitoes, mosquito larvae, and flies. A smaller number of specimens of a miscel-

laneous nature, such as urine, vomit, faeces, specimens of parasitic worms, tetanus, leprosy, etc. During the progress of the work, a new protozoan parasite of considerable scientific interest was discovered in a species of field rat, a new species of bilharzia ova noted, and the presence of human ticks in India ascertained for the first time."

IN addition to this much other scientific work was done and several papers of considerable value and interest have been published.

WE earnestly hope that it will be possible to appoint an assistant to the Superintendent who should be a man with a modern European training in laboratory work. As it is, the Government of Madras, Colonel King and the officers of the Institute have every reason to be satisfied with the good beginning made by this Institute.

Correspondence

THE EPIDEMIOLOGY OF PLAGUE

To the Editor of "THE INDIAN MEDICAL GAZETTE."

SIR,—As I pointed out in a previous article although plague almost annually recurs in the plains in places where there have been previous outbreaks, it has been frequently observed that if the outbreak has been a severe one the outbreak in the succeeding year is usually mild in character. Magistrates ascribe this to the fact that most of the rats have died in the previous year. Others consider that either the pabulum is diminished or the necessary surroundings for the growth and propagation of the bacillus have become altered. The persistence with which plague of the plains recurs is, as I have elsewhere stated, quite as characteristic of this variety of the disease as is the non recurrence of mahamari in the year succeeding an outbreak. But as plains plague has increased in recent years, so on the other hand has hill plague diminished. In the last decade three outbreaks only have occurred. In 1891, six deaths occurred in Badhan in Garhwal. In 1893, an outbreak occurred at Surkahi in the Almora district, about 10 persons dying, and in 1897 an outbreak occurred in Semi in Garhwal, when 31 deaths occurred. In the eighties six outbreaks occurred. In the present lustrum there has only been the outbreaks at Buransi in 1902, and an outbreak this year at Kultham in Goriphat Munsyari, Paigannah Johar, District Almora. Kultham is a village of 8 houses, 110 miles from Kathgodam by road, 22 miles from Tejam, and is close under the snows. An outbreak of mahamari occurred in the end of April, 9 deaths occurring. On the arrival of my Assistant Superintendent of Vaccination at the village, he learnt that the disease broke out on the 27th of April, when a man named Ratan, 22 years of age, got ill with enlarged glands in the neck and armpit, strong fever, pain in the head and redness of the conjunctive. The disease was ascribed to the fact that a house in the village got burnt, wherein was stored some old mandana grain and those who ate this grain first got ill. No dead rats were found.

All those attacked died and had enlarged glands, death usually occurring on the third or fourth day. The unaffected people of the village encamped out in the jungle and after the end of May there were no more attacks. As far as is known there had never been plague before in this village, and there were no cases anywhere near. The Gori river and the neighbourhood of Tejam is, however, a well known mahamari district, and in Dr Planck's report for 1876 many accounts are given of the prevalence of Gola (mahamari) in this neighbourhood. Here then was an isolated outbreak of hill plague occurring far away 110 miles in the interior of the Kumaon hills—a spontaneous outbreak in which no dead rats were found and where only one small community was attacked. In this outbreak the household that first ate the old diseased grain first got ill. The people themselves believed that they got the disease, in the first instance, from the grain. From this household the disease spread to the other people. There is much cause for reflection when one considers the circumstances of this small outbreak briefly referred to above. Dr Planck considered that in spontaneous outbreaks rats were always the connecting link between the diseased (?) grain and man. The disease at Kultham must have laid hidden somewhere for years as in this case there was no possible chance of importation. Whether in handling this old grain fleas or bugs inoculated the first household can only be a matter for conjecture. I think, however, that much may be learnt from these mysterious outbreaks of mahamari, and from an epidemiological point of view they are most interesting. I was unfortunately hurried away when on the spot (Buransi) in the winter of 1902 examining into an outbreak of mahamari, but an opportunity may fortuitously occur again. The persistence of

plague in the endemic area of Garhwal is evidently not due to a continuous succession of passages of the microbe through rats or human beings. For years (often for 30 years and more) the disease disappears in a certain area in Kumaon and then in an isolated hamlet springs suddenly into life. If precaution in the way of evacuating the dwelling is not observed, the disease will spread just as the plains variety spreads. The period of quiescence of mahamari is comparable to the quiescence of plague in India during the hot weather, but is in the former case of much longer duration.

Yours, &c,

J CHAYTOR WHITE, M D, D P H,

November 1905

Offg Sanitary Commissioner, U P

USE OF ARSENIC, &c., HYPODERMICALLY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—While travelling recently through Italy I learnt of the very extensive use of arsenic and iron and other drugs hypodermically in that country.

Since then I have given, and seen given, a considerable number of injections of arsenic and iron with good results and without any unpleasant local reaction. The preparations are put up in small, sealed flasks by Zambelletti, Milan, each flask containing about enough for an injection. The neck of the flask is broken off at the time of using, the needle of the syringe is thrust into the buttock at right angles. It is not a bad plan to divide each buttock by imaginary horizontal and vertical lines into four squares and give the injections into the squares in order one daily, avoiding the inner and lower squares. The course recommended by Zambelletti is fifty injections gradually increased in amount and strength and finally decreased in the same way.

Some of the numerous cases of anæmia met with in India might perhaps with advantage be treated in this way. The solutions might well be prepared at the Government Laboratories. It appears to me that hypodermic medication might be used with advantage in the hospitals in India much more extensively than at present both for indoor and outdoor patients.

Yours, &c,

C DUER F.R.C.S.,

MAJOR, I M S

TORONTO, CANADA,
23rd September, 1905

PARATYPHOID IN INDIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I am writing these few lines to invite your attention to the interesting case of Paratyphoid published by Lieutenant Mackie, I M S, in the *Lancet* of 23rd September 1905.

The writer has referred at some length to the original work of Dr Row and myself on the subject of paratyphoid, and you might draw the attention of your readers of the *Indian Medical Gazette* to the paper.

This fever has now been observed by different observers in different parts of the world, judging by current medical literature. And there is no doubt it is of common occurrence in India, as the future will, I hope, conclusively prove.

The time has come, I think, for the Government of India to appoint a Commission of experts to sift this question, as already suggested by you in the *Indian Medical Gazette*, for in my opinion there is at present a most needless sacrifice of valuable lives among the European army, both men and officers, owing to a faulty conception of the nature or etiology of the disease. And I speak as one who has some claim to be considered an expert on the subject after 25 years experience in India. The present mortality from what is called "Enteric" in India and which I think is largely paratyphoid, is 25 per cent or over, and it could be reduced to about 2 per cent or so by a certain abortive treatment which I will be glad to demonstrate if allowed an opportunity.

Yours, &c,

D B SPENCER,

MAURITIUS

LIEUTENANT COLONEL, I M S

Service Notes

THE following note on the civil medical appointments open to I M S officers in India has been compiled in response to questions asked by several correspondents, young officers who say that they know of no document which gives details of the openings in the various Civil Departments and Provinces in India. This has been compiled from various Civil Lists and its absolute accuracy is not guaranteed, but it is sub-

stantially accurate and gives a bird's eye view of the civil appointments open to I M S officers and officers of the Indian Subordinate Medical Department. We may commence with appointments—

(1) UNDER THE GOVERNMENT OF INDIA—

The Director General, I M S

The Sanitary Commissioner with the Government of India.

The Statistical Officer to the Govt of India, Medical Dept.

The Secretary to the Director General

The Senior Medical Officer, Port Blair

The Viceroy's Surgeon (if an I M S Officer)

Director, Central Institute for Research

Director Pasteur Institute, Kasauli

Assistant Director,—

(2) UNDER THE FOREIGN DEPARTMENT (GOVERNMENT OF INDIA)—

The Agency Surgeon, Baghelkhand

The Agency Surgeon, Bhopal

The Agency Surgeon, Bhopawar

The Agency Surgeon, Bundelkhand

The Agency Surgeon, Quetta (is also A M O)

The Residency Surgeon, Gwalior

The Residency Surgeon, Indore

The Residency Surgeon, Malwa.

The Residency Surgeon, Hyderabad

The Residency Surgeon, Kashmir

The Residency Surgeon, Gilgit.

The Residency Surgeon, Meshed

The Residency Surgeon, Bangalore

The Residency Surgeon, Nepal

The Civil Surgeon, Quetta

The Civil Surgeon, Mysore

The Surgeon and Sanitary Commissioner, Mysore

The Residency Surgeon, Bagdad

The Residency Surgeon, Bushme

The Agency Surgeon, Muskat

The Civil Surgeon, Ajmere

The Civil Surgeon, Bikanir

The Agency Surgeon, Alwar

The Agency Surgeon, East Rajputana

The Agency Surgeon, Western Rajputana.

The Agency Surgeon in Harauti and Deoli

The Residency Surgeon, Jypore

The Residency Surgeon at Udaipur

The Medical Officer, Kotah

The A M D in Rajputana is the Senior Medical Officer in Rajputana, and similarly in Central India

The Baroda Surgeoncy is held by a Military Medical Officer as a collateral charge, and one Medical officer is selected to be in Medical charge at Mount Abu

(3) UNDER THE GOVERNMENT OF INDIA (FINANCIAL DEPARTMENT)—

The Assay Master, Calcutta

The Assay Master, Bombay

The Deputy Assay Master, Calcutta

The Deputy Assay Master, Bombay

(4) UNDER THE GOVERNMENT OF BENGAL—

The Inspector General of Civil Hospitals

The Inspector General of Prisons

The Sanitary Commissioner

Three Deputy Sanitary Commissioners

*The Principal, Medical College, Calcutta

*The Professor of Materia Medica.

*The Professor of Surgery

*The Professor of Anatomy

*The Professor of Midwifery

*The Professor of Ophthalmology

*The Professor of Chemistry

*The Professor of Pathology

*The Professor of Physiology

The Resident Surgeoncy, Medical College, Calcutta

The Resident Physiciancy, Medical College, Calcutta

The Resident Surgeoncy, Eden Hospital

*The Surgeon Superintendent, Presidency General Hospital

The First Surgeon, Presidency General Hospital

The Second Surgeon, Presidency General Hospital

The Superintendent, Campbell Medical School

The Superintendent, Botanic Gardens†

The Curator, Botanic Gardens

The Superintendent, one or two Central Jails, Calcutta.

The Superintendent, Central Jail, Bhagalpur

The Superintendent, Central Jail, Buxar

The Superintendent, Central Jail, Midnapore

* Appointment in the gift of the Government of India.
† Appointment in the gift of the Secretary of State.

The Civil Surgeoncies of the following districts. —

Burdwan	Patna
Midnapore	Gaya
Hooghly	Airah
Howrah	Chapra
24 Pargunnas	Motihari
Nadia	Mozufferpur
Muhsidabad	Dumkha
Darjeeling	Monghyr
Purnea	Bhagalpore
Cuttack	Ranchi
Puri	Hazaribagh
Balasore	Jessore
Dumka	Khulna
Chaubassa	Suri
Punah	Sambalpur
	Palamau

Health Officer, Port of Calcutta

Protector of Emigrants

Civil Surgeon, Serampore (in Hooghly District)

Several of these appointments are, practically speaking reserved for, or usually held by, uncommissioned Medical Officers, or by Military or Civil Assistant Surgeons

(5) UNDER THE GOVERNMENT OF EASTERN BENGAL AND ASSAM—

The Inspector General of Civil Hospitals

The Inspector General of Prisons

The Sanitary Commissioner

Deputy Sanitary Commissioners

The Civil Surgeoncies of the following districts —

Dacca	Dinajpur
Mymensingh	Rangpur
Comilla	Malda
Chittagong	Sylhet
Norhal	Dibrugarh
Barisal	Gauhati
Faridpur	Shillong
Bogra	Dhubri
Jalpaiguri	Lushai Hills
Pabna	Chittagong Hill Tracts
Rajshrya	Nowgong
	Sibsagari
	Tezpur
	Garo Hills
	Manipur
	Kohima

(6) UNDER THE GOVERNMENT OF UNITED PROVINCES, A & O —

The Inspector General of Civil Hospitals

The Inspector General of Prisons

The Sanitary Commissioner

Two Deputy Sanitary Commissioners

The Superintendent of Central Jail at Agra

The Superintendent of Central Jail, Allahabad

The Superintendent of Central Jail, Lucknow

The Superintendent of Central Jail, Bareilly

The Superintendent of Central Jail, Benares

The Superintendent of Central Jail, Fatehgarh

The Superintendent, Central Lunatic Asylum, Agra

The Civil Surgeoncies of the following districts —

Allahabad	Mainpuri
Benares	Bahraich
Saharanpur	Sultanpur
Meerut	Etah
Gonda	Jalaun
Bulandshahr	Fatehpur
Aligarh	Hamirpur
Bareilly	Unao
Shahjahanpur	Hirdoi
Moradabad	Fatehgarh
Budaon	Bynor
Cawnpur	Rao Bhoel
Jaunpore	Kheir
Mirzapore	Mozuffernagar
Ghazipur	Jhansi
Azamgarh	Banda
Gorakhpore	Pilibhit
Naini Tal (Hills)	Ballia
Missouri (Hills)	Muttra

(7) UNDER THE GOVERNMENT OF THE PUNJAB—

The Inspector General of Civil Hospitals

The Inspector General of Prisons

The Sanitary Commissioner

A Deputy Sanitary Commissioner

The Principal, Medical College, Lahore

The Professor of Surgery, Lahore

The Professor of Anatomy, Lahore

The Professor of Materia Medica and Pathology

The Professor of Chemistry

The Professor of Botany & Physiology
The Medical Officer, Patiala State

The Civil Surgeoncy of the following districts —

Lahore	Delhi
Multan	Hissar
Amballa	Karnal
Amritsar	Ludhiana
Gudaspur	Jullundar
Simla 2 appointments (but not reserved for Punjab only)	Gujrat
Murree (Hills)	Shahpur
Dharmasala (Hills)	Rohtak
Sialkote	Mosaffergarh
Ferozepore	Hoshiarpur
	Gujranwallah

(8) UNDER THE ADMINISTRATION OF NORTH WEST FRONTIER PROVINCE—

Administrative Medical Officer

The Civil Surgeon, Peshawar

The Civil Surgeon, Abbottabad (Hills)

The Civil Surgeon, Bannu

The Civil Surgeon, Dera Ismail Khan

The Civil Surgeon, Dera Ghazi Khan

Several of these appointments are held as collateral charges by medical officers in Military employ

(9) UNDER THE ADMINISTRATION OF THE CENTRAL PROVINCES—

The Inspector General of Civil Hospitals

The Inspector General of Prisons

The Superintendent, Jubbulpore Central Jail

The Superintendent, Nagpur Central Jail

The Superintendent, Raipur Central Jail

The Civil Surgeon, Nagpur

The Civil Surgeon, Jubbulpore

The Civil Surgeon, Raipur

The Civil Surgeon, Nimr

The Civil Surgeon, Chanda

The Civil Surgeon, Damoh

The Civil Surgeon, Mandla

The Civil Surgeon, Bhandara

The Civil Surgeon, Balaghat

The Civil Surgeon, Buldana

The Civil Surgeon, Won

(10) UNDER THE GOVERNMENT OF MADRAS—

The Surgeon General with the Government of Madras

The Personal Assistant to the Surgeon General

The Inspector General of Prisons

The Sanitary Commissioner

The Deputy Sanitary Commissioner

The Surgeon to the Governor of Madras

The Principal, Madras Medical College

The Professor of Surgery

The Professor of Pathology

The Professor of Hygiene

The Professor of Materia Medica

The Professor of Ophthalmology

The Professor of Chemistry

The Professor of Midwifery

The Professor of Anatomy

The Presidency Surgeons—four

The Physician to H. H. The Maharajah of Travancore

The Superintendent of some or all the 4 Central Jails

The Superintendent, Lunatic Asylum

The Resident Physician, General Hospital

The Superintendent, King Institute of Preventive Medicine

The Civil Surgeons or District Medical Officers of the following districts —

Anantpur	Malabar
N. Arcot	Nilgiris
S. Arcot	Nellore
Bellary	Salem
S. Canara	Tanjore
Chingleput	Tinnevely
Coimbatore	Tiruchinopoly
Cuddapah	Cannanore
Ganjum	Chittoor
Kistna	Chattrapur
Godavari	Guntur
Kurnool	Nagapatam
Madurai	Tellicherry

(11) UNDER THE GOVERNMENT OF BOMBAY—

The Surgeon General with the Government of Bombay

The Personal Assistant to the Surgeon General

The Inspector General of Prisons

The Sanitary Commissioner

* These are divided between the Madras & Bengal Services.

Five Deputy Sanitary Commissioners (West, East, Central, Gujarat and Sind Circles)

Surgeon to the Governor

Principal, J J Hospital

First physician, J J Hospital

Second physician, J J Hospital

Professor of Physiology and Hygiene

Second Surgeon

Obstetric Physician

Ophthalmic Surgeon

Chemical Analyst

Physician to St George's Hospital

Resident Surgeon to St George's Hospital

Surgeon, G T Native Genl Hospital

Presidency Surgeon, 2nd District

Presidency Surgeon, 3rd District

Medical Officer, Kathiawar Political Agency

Health Officer, Bombay (need not be I M S Officer)

Health Officer Port of Bombay

Port Surgeon, Aden

The Plague Laboratory, Parel

Superintendent, Mathura

Superintendent, Mahableshwar

Superintendent, Colaba Asylum

Superintendent, Yerwada Central Jail

Superintendent, Hyderabad (Sind) Central Jail

Civil Surgeons of the following districts —

Aden

Ahmedabad

Bioach

Ahmednagar

Bioach

Belgaum

Dharwar

Dhulia

Hyderabad (Sind)

Karachi

Nasik

Poona

Ratnagiri

Satara

Shikarpur

Sukkur

Surat

Thana

Sassoon General Hospital

(Poona)

Karwar

Kaira

Panch Mahals

Sholapur

Bijapur

Kotri

(12) UNDER THE GOVERNMENT OF BURMA—

The Inspector General of Civil Hospitals and Sanitary Commissioner

The Inspector-General of Prisons

The Central Jail Superintendents

The two Civil Surgeons Rangoon

Resident Surgeons, Madras General Hospital

The Civil Surgeons of following districts —

Moulmein

Akyab

Bassein

Mandalay

Myangyan

Chin Hills

Thayetmyo

Toungoo

Prome

Tharrawaddy

Henzada

Thongwa

Kyankfja

Thatou

Tavoy

Pegu

Sandoway

Katha

Minbu

Yamethin

Pakokku

Shevebo

Kyankse

Upper Chundwin

Magwe

South Shan

North Shan

Lower Chundwin

Saigang

Phimbo

Ruby Mines

Myitkyna

Meiktila

With reference to the revised rules for study leave published in our last issue we now call attention to the following letter —

"No 5520, dated Simla, the 30th September 1905

From—Major A E Roberts, M B, I M S, Secretary to the Director General, Indian Medical Service,

To—The Inspector General of Civil Hospitals

WITH reference to rule 7 of the rules regarding the grant of Study Leave to officers of the Indian Medical Service recently communicated by the Government of India to all Local Governments and Administrations, I am directed to state that in many instances the information furnished by officers applying for Study Leave has been too vague and meagre in regard to the course or courses of study contemplated by them, and to request therefore that in future officers may be called upon to submit more detailed and definite information as to the actual nature, the subjects and the length of the course or courses of study, the institution or institutions where they intend studying and the approximate dates of the examinations at which they desire to appear.

The attention of officers should be called specially to the 1st clause of rule 9."

For easy reference we again quote rules 7, 8 and 9 —

"7 Except as provided for in Rule 8, all applications for Study Leave shall be submitted, with the audit officer's certificate, to the Director General, Indian Medical Service, through the prescribed channel, and the course or courses of study contemplated and any examination the candidate proposes to undergo shall be clearly specified therein.

8 Officers on furlough who wish to have part of their furlough converted into Study Leave should address the Under Secretary of State, India Office, and should furnish a statement showing how it is proposed to spend the Study Leave.

9 During the course of study lodging allowance at the rate of 8s a day for a field officer, 6s for a Captain, and 4s for a Lieutenant will be granted. It is to be understood that, in order to qualify for the grant of Study Leave or for the receipt of lodging allowance, a definite course of study at a recognized institution, which will occupy the time of the officer for five or six days a week, must be pursued."

THE promotion of Major P P Kilkelly, M B, I M S, is antedated from 29th July 1905 to 30th January 1905

LIEUTENANT COLONEL F A ROGERS, D S O, I M S, for many years a Civil Surgeon in Bengal, has retired, with effect from 16th December 1905

CAPTAIN J E CLEMENTS, I M S, officiates as Superintendent, Central Jail, Agra, *vice* Major S H Henderson, I M S, on furlough

CAPTAIN W MAC M PEARSON, I M S, is appointed Deputy Sanitary Commissioner, 1st Circle, U P

ON return from leave, Major L Pisan, F R C S, I M S, goes as Civil Surgeon to Mussoori

LIEUTENANT COLONEL W ALPIN, I M S, of 39th Horse, exchanges regiments with Captain J Gould, I M S, of 14th Lancers—"on condition that the State is put to no expense thereby"

No 961—The Governor General in Council is pleased to notify that, with effect from the date of this notification, the following changes will be made in the organisation of, and in the conditions of admission to, the assistant-surgeon branch of the Indian Subordinate Medical Department

2. The existing three presidential lists of military assistant-surgeons will be amalgamated and there will be one list for all general service purposes, except for promotion to the senior grades, *i.e.*, the names of assistant-surgeons now in the service will be placed in one combined list for all India in the same grades as those in which they now appear, the order of seniority in accordance with the date of their appointment thereto being retained. They will henceforth be liable to all the conditions generally attached to a unified service, but for purposes of promotion to the senior grades no change will be made in the existing conditions and their names will continue to be borne on their respective presidential lists, which will be maintained in the office of the Director General, Indian Medical Service, until the last of those upon the present establishments is absorbed.

3 All future appointments to this branch of the Indian Subordinate Medical Department will, however, be made on the general list for all purposes including that of promotion, and in place of the present system under which three separate examinations are held for the selection of candidates for admission to the presidency colleges of Madras, Bombay and Calcutta respectively, only one competitive test will be instituted in future and that on the first Monday in February of each year. Convenient centres throughout India will be fixed by the Director General, Indian Medical Service, and the examination will be conducted under his direction with the assistance of the Educational Department.

4 Candidates for this examination must be of European or Eurasian parentage, and between 18 and 18 years of age at the date of the examination, of sound bodily health and in the opinion of the Director General, Indian Medical Service, suitable in all respects for admission to the Indian Subordinate Medical Department. Accepted candidates will be allocated to the Medical Colleges at Madras, Bombay and Calcutta according to the number of vacancies in each, but as far as possible the wishes of the candidates and the location of their former residence will be considered in appointing them to a particular presidency college for professional training.

5 The selected candidates will be admitted to college on the 15th of June in Calcutta and Bombay and on 1st of July

at Madras and the following courses of study will be instituted in common in all the colleges

1st year—

Anatomy (including osteology and dissections)
Physiology
Materia medica
Chemistry
Out-door medical and surgical practice
Compounding and dispensary practice

2nd year—

Anatomy and dissections
Physiology and histology
Materia-medica
Pharmacy and compounding
Chemistry and practical chemistry
Hospital practice

3rd year—

Medicine (systematic and clinical)
Surgery (ditto)
Medical jurisprudence (including toxicology and lunacy)
Ophthalmology
Pathology and *post mortems*
Hospital practice, medical and surgical
Dentistry and dental practice

4th year—

Medicine
Surgery and operative surgery
Midwifery and diseases of women and children
Pathology
Hygiene (including vaccination)
Medical, surgical, ophthalmic and obstetric hospital practice

The scope of the instruction in these subjects and the prescription of text books will be arranged departmentally by the Director General, Indian Medical Service

6 During this period of instruction the pupils will each receive a monthly allowance of Rs 26-4, and at the conclusion of each year's course they will be examined under the direction of the Principal of the College in the subjects of study and their progress therein will be reported to the Director General, Indian Medical Service, who may remand an unsuccessful student to his studies for a definite period

7 At the conclusion of the examination in the subjects of the fourth year, in which their practical knowledge will be tested, the Principal of the College will report to the Director General, Indian Medical Service, on their fitness for admission to the Indian Subordinate Medical Department. Those declared fit will be examined by written papers issued by the Director General, Indian Medical Service, and common to all the colleges in the following subjects

Medicine
Surgery
Midwifery
Pathology
Hygiene
Materia medica

This examination will commence on the first Monday in March of each year

8 The successful candidates will, after signing the prescribed declaration, be appointed fourth class assistant surgeons and their names will be placed on one list, their position therein being determined by the results of this final examination. When two or more obtain equal marks their relative positions will be regulated by age. Warrant medical officers on appointment will be allowed to notify their preference for the Command in which they desire to serve, which will be considered with due regard to the requirements of the service and to their position on the list. It must, however, be distinctly understood that no claim to be posted to any particular locality can be recognised

9 Fuller details as to the conditions of service, etc., will be found in the general prospectus which may be had free on application to the Director General, Indian Medical Service

MAJOR E. R. PARRY, I M S, has gone to Dacca as Superintendent, Dacca Central Jail *vice* Mr W. AcO Beadon, retired from 16th November

ON the retirement of Lieutenant-Colonel Whitwell, I M S, Lieutenant-Colonel H. J. Dyson, I M S, F R C S, Civil Surgeon, Hazaribagh, becomes permanently a Civil Surgeon, 1st class

LIEUTENANT COLONEL HENRY THOMAS, I M S, has been appointed Sanitary Commissioner, Madras, *vice* Colonel King, C I E, gone to Burma on promotion

LIEUTENANT COLONEL L. A. WADDELL, I M S, C B, C I E, LL.D, M B, &c., has been granted six months' extension of

leave on medical certificate. In October 1904 he got one year's leave after Tibet.

THE many friends in India, especially in the Bombay Presidency, will learn with regret the news of the death of Surgeon General William McConaghy, who only a few months ago left Bombay owing to failing health. The day he left these shores for England he looked weak and worn, but the change Home, from all accounts, appeared to have slightly restored him to health. It was not for long however, and he passed away at his residence, Granville Place, London the Sunday before the incoming mail left. Surgeon General McConaghy was thirty six years in India, and during his period of service was Civil Surgeon of Karwar, Dharwar, and Poona. He was subsequently promoted to Principal Medical Officer in Sind, and finally, was appointed Surgeon General with the Government of Bombay.

LIEUTENANT COLONEL W. COATES, I M S, returned to Lahore on 13th October, relieving Lieutenant-Colonel H. Hendley, I M S, who returned to Amritsar on 14th October

CAPTAIN E. D. W. GREIG, I M S, recently on special duty in Uganda on the Royal Society's Sleeping Sickness Commission has been granted (in supersession of leave granted 25th August 1904) combined leave for 10 months and 27 days from 5th February, 1905

LIEUTENANT COLONEL R. H. CHARLES, M D, F R C S I, was appointed Surgeon on the staff of H. R. H. the Prince of Wales, with effect from 14th October 1905

ON return from furlough Major W. H. B. Robinson, I M S, goes back to Bikaner

ON return from furlough Lieutenant-Colonel G. W. P. Dennys, I M S, goes back to Peshawar as Civil Surgeon

CAPTAIN J. C. KUNHARDT, I M S, is posted to the officiating medical charge of 1st Brahmins

LIEUTENANT V. P. NESFIELD, F R C S, is posted to the officiating medical charge of 18th Infantry

CAPTAIN H. B. MEAKIN, I M S, has got an extension of leave for 6 months on medical certificate.

LIEUTENANT COLONEL L. A. WADDELL, I M S, C B, C I E, has got an extension of leave for 6 months

MAJOR A. W. DAWSON, I M S, is appointed to hold Civil Medical charge of Roorkee in addition to his military duties

DR H. A. MACLEOD, Civil Surgeon, Moradabad, was granted one month's privilege leave from 1st November 1905

V 47B 1 of 1898.—In exercise of the powers conferred by section 4 of the Lepers Act (III of 1898), the Lieutenant-Governor and Chief Commissioner, U P A and O, is pleased to appoint the following medical officers of Government to be inspectors of lepers—

The Civil Surgeon of Allahabad,
The Civil Surgeon of Benares,
The Civil Surgeon of Lucknow,
The Civil Surgeon of Naini Tal,
The officer in medical charge of Almora,
The Superintendent of the Allahabad Central Prison,
The Superintendent of the Benares Central Prison,
The Superintendent of the Lucknow Central Prison,
and, in exercise of the powers conferred by section 15 of the said Act, the Lieutenant Governor and Chief Commissioner is pleased to appoint the Inspector General of Civil Hospitals, North Western Provinces and Oudh, to be the officer to whom appeals may be made by persons in respect of whom an inspector of lepers has issued a certificate or has refused to issue a certificate

BABU B. B. GUPTA is appointed officiating Civil Surgeon of Hoshangabad, C P

CAPTAIN W. H. KENDRICK, I M S, has been appointed Civil Surgeon of Saugor, C P

LIEUTENANT COLONEL J. L. POYNDR, I M S, is appointed Civil Surgeon of Nagpur

Notification.—The services of the following officers have been replaced at the disposal of the Government of India, in the Home Department, with effect from the dates entered against their names—

1 Captain R. J. Bradley, I M S, from the afternoon of the 22nd August 1905

2 Lieutenant W. J. Collinson, I M S, from afternoon of the 22nd August 1905

3 Lieutenant P G Easton, I M S, from the forenoon of the 22nd August 1905

Notification—The services of Captain W F Harvey, M B, I M S, are placed temporarily at the disposal of the Government of India, in the Home Department, with effect from such date as he makes over charge of his present duties

MAJOR J LLOYD JONES, I M S, on return from leave, is posted to Bombay, as Deputy Assay Master

LIEUTENANT COLONEL PATRICK A WFIR, I M S, has been appointed Inspector General of Civil Hospitals in the Central Provinces, *vice* Colonel Moriarty, I M S, retired

COLONEL MORIARTY has been able to do much for the hospitals of the Central Provinces, and has left them as well equipped as those in any other province in India for example all civil surgeons have been provided with good high power microscopes at the public expense, a step we would like to see initiated in other provinces

LIEUTENANT G C I ROBERTSON, I M S, is placed upon temporary half pay from 17th September 1905

LIEUTENANT COLONEL C P LUKIS, M D, F R C S, I M S, Principal Medical College, Calcutta, is gazetted a Fellow of Calcutta University

THE services of Captain F Elwes I M S, are placed permanently at the disposal of Madras

CAPTAIN J E CLEMENTS, M B, I M S, joins the Jail Department U P, and is posted to Agra Central Prison, *vice* Major Henderson, I M S, on furlough

LIEUTENANT COLONEL A T BOWN, I M S, obtained one month's extension of leave

WE clip the following from an account of the meeting of the Council, Royal College of Surgeons England—

"Mr Morris, on behalf of the Museum Committee, reported that Lieutenant-Colonel R. Havelock Charles I M S, M D, had presented to the College his collection of 248 skulls 16 skeletons, and other specimens, representative of many of the castes and tribes of India and other parts of Asia, and explained that the collection was especially valuable, as the collector had been able to identify the majority of the skulls as belonging to certain individuals known before death

The best thanks of the Council were given to the donor "

MILITARY ASST SURGEON W ST M HEFFERMAN, I S M D, is placed in medical charge of Lower Chindwin District, and Asst. Surgeon P McCarthy in charge of Myaungmya District, *vice* Capt F Bradley, I S M D, gone on leave

THE services of Asst Surgeon E J Murphy are placed at the disposal of Burma for civil employment

MAJOR T STODART, I M S, was relieved as Civil Surgeon of Akyab by Capt L Gilbert, I M S, on 21st October

CAPTAIN L P FARRELL I M S, was appointed officiating Medical Officer, 110th Mahratta Light Infantry, *vice* Capt L P Stephen, I M S, on leave

THE services of Captain E L Ward, I M S, are placed permanently at the disposal of the Jail Department of the Punjab

ASST SURGEON F E KNIGHT comes to Bengal for civil employment from 16th October 1905

LIEUTENANT COLONEL G W P DENNIS, I M S, on return from furlough, resumed charge of the Civil Surgeoncy of Peshawar relieving Captain L J M Deas, I M S

LIEUTENANT H C BUCKLEY, I M S, was appointed to hold additional medical charge of Almora Civil Station, *vice* Captain J E Clements, I M S

CAPTAIN D N ANDERSON, I M S, joins the Central Provinces and is posted to Raipur as Superintendent of the Central Jail

CAPTAIN V E H LINDESAY, I M S, has been obliged to go home on sick leave

MILITARY ASST SURGEON M GALVIN is appointed Resident Medical Officer, Eden Sanitarium, Darjeeling

THE services of Captain DICK, I M S, are placed permanently at the disposal of the Burma Government.

LIEUTENANT COLONEL H. W B BOYD, F R C S I, on return from leave, is posted as Medical Officer, Kathiawar Political Agency

ON return from furlough Lt Col R B Roe, I M S, re joins Amroht as Civil Surgeon

CAPTAIN P F CHAPMAN I M S, is transferred to Chindwin, C P

CAPTAIN W J NIBLOCK, I M S, Third Surgeon, General Hospital Madras, has been granted 15 months' combined leave

CAPTAIN G C WEBSTER, I M S, got one month's privilege leave

CAPTAIN T E WATSON, I M S, was transferred to Bellary

CAPTAIN P P ATAL, I M S, has got one year's leave on medical certificate

CAPTAIN W H TUCKER, I M S, is due out from leave on 18th January 1906

ON return from leave Lieutenant-Colonel J M Cadell, I M S, was posted to Moradabad as Civil Surgeon

LIEUTENANT COLONEL JOHN ANDERSON, I M S, on return from leave, was posted to Lucknow as Civil Surgeon

ON return from leave Major W H E Woodwright, F R C S I, was posted to Aligarh as Civil Surgeon

DR H A MACFOD on relief was posted as Civil Surgeon to Muzaffarnagar

LIEUTENANT COLONEL J J PRATT, I M S, has gone to Fyzabad as Civil Surgeon

MAJOR C MILNE, I M S, has gone to Gonda as Civil Surgeon

CAPTAIN W B TURNBULL, I M S, has gone to Mainpuri as Civil Surgeon

CAPTAIN G HUTCHESON, I M S, has gone to Bijnor as Civil Surgeon

MAJOR P ST C MORE, I M S, on return from leave, was posted to Attock as Civil Surgeon

LIEUTENANT W FORRESTER, I S M D, was appointed Civil Surgeon of Gujranwala

MILITARY ASSISTANT SURGEON R J OWEN is posted as Civil Surgeon of Rohtak

THE services of Captain C R. Bakhle, I M S, and of Captain C H S Lincoln, I M S, are placed permanently at the disposal of the Bombay Government.

CAPTAIN J W LITTLE, I M S, is posted as Civil Surgeon of Wana

MAJOR ANDREW BUCHANAN, I M S, Civil Surgeon, Central Provinces, has obtained two months' extension of furlough

DRESS—Badges and Devices, Indian Subordinate Medical Department—The Government of India having ruled * that the letters 'I M S' shall be used exclusively by members of the Indian Medical Service, it is notified that, in future, a warrant officer of the Indian Subordinate Medical Department, on promotion to be a departmental officer with honorary rank shall wear the same badges (other than those of rank) and devices as before his promotion

CAPTAIN G E CHARLES I M S, 6th Jats, is appointed to the medical charge of the 38th C I Horse, *pro tem*

LIEUTENANT CHARLES BROADRIBB I M S, is appointed officiating Medical Officer, 6th Jats

THE services of Capt Clayton Lane, M D (Lond), I M S, were transferred to the Government of Eastern Bengal and Assam

CAPTAIN M Corry, I M S, who has been acting as Civil Surgeon of Murree, has gone to Jhelum as Civil Surgeon, and thereby relieved Major W H Ogilvie, I M S, who has been holding collateral medical charge of the district.

CAPTAIN E L WARD, I M S, on return from leave, took over charge of the Central Jail, Multan

CAPTAIN C R. BAKHLE, I M S, is appointed Civil Surgeon of Bijapur

CAPTAIN C H S. LINCOLN, I M S, is appointed Resident Surgeon, St. George's Hospital, Bombay

LIEUTENANT COLONEL H R WOOLBERT, M B, F R C S, I M S, is appointed Honorary Surgeon, 2nd Battalion, B, B & C I ry Volunteer Rifle Corps, *vice* Lieutenant-Colonel D Ffiench Mullen, I M S

LIEUTENANT COLONEL M A T COLLIE, M B (Abed), C M, I M S, to be Physician, St. George's Hospital, Bombay

LIEUTENANT COLONEL J P BARRY, B A M B, I M S, to be Presidency Surgeon, Third District, and in medical charge of the Common Prison, House of Correction and Byculla Schools, Bombay

MAJOR B B GRAFPOOT, M D, I M S, to be Presidency Surgeon, Second District, and Marine Surgeon, and Superintendent, Lunatic Asylum, Colaba

ON return from furlough Major B H Deane was posted to Motihari (Champaran District), and Captain V E H Lindsay, I M S, went home on sick leave

MILITARY ASSISTANT SURGEON C G THOMPSON, I S M D, is appointed Civil Surgeon of Garhwal

CAPTAIN G LAMB, I M S, is placed on special duty under the Government of India for plague research work

CAPTAIN L M DALVI, I M S, is confirmed in his appointment as a Superintendent in the Bengal Jail Department

LIEUTENANT COLONEL R SHORE, I M S, is granted 18 months' leave

CAPTAIN L T M DFAS, I M S, is posted as Residency Surgeon, Mewar

CAPTAIN F A SMITH, I M S, is granted 18 months' leave

WE learn from the R A M C *Journal* that the Commander in Chief has appointed Major J W Jennings, R A M C, to be an "Inspector of health efficiency, Army Head Quarters" from 1st September, 1905. Major Jennings recently served on the Abyssinian Mission and has written a book on the subject

THE services of Captain H D Poole, I M S, are placed permanently at the disposal of the United Provinces

THE King has approved of the following promotions —
Colonel J P Greany, to be Surgeon General, dated 20th June 1905

Lieutenant Colonel C H Bertson, to be Colonel, dated 16th June 1905

Lieutenant-Colonel T E L Bate, to be Colonel, dated 12th July 1905

Lieutenant-Colonel J McCloghly, to be Colonel, dated 20th June 1905

Lieutenant-Colonel H B Briggs, to be Colonel, dated 10th July 1905

Captain P P Kilkelly, M B, to be Major, dated 29th July 1905

THE King has approved of the transfer to temporary half pay list of the following officers —

Major W E A Armstrong, I M S, dated 12th March 1905
Captain G C I Robertson, I M S, dated 17th September 1905

THE King has approved of the retirement of the following officers —

Surgeon General William McConaghey, M D, dated 20th June 1905

Lieutenant Colonel Patrick Fenelon O'Connor, C B, dated 13th July 1905

Lieutenant-Colonel John Henry Tull Walsh, dated 21st July 1905

Lieutenant-Colonel George Tucker Thomas, dated 26th June 1905

Lieutenant Colonel John Lancaster, dated 1st April 1905

Major George Thomas Mould, dated 28th July 1905

Daniel Grove Marshall, M B, dated 24th June 1905

CAPTAIN A SPITTLER, I M S, Assistant-Surgeon C M Moody, and Assistant Surgeon G F Andeen, I S M D, have passed the higher standard on Baluchi language

CAPTAIN W H TUCKER, I M S, has got six months' extension of leave, Capt R D Willcocks, six months, and Captain L. Rundall, three months

THE following officers are appointed to be Honorary Surgeons to the new Viceroy —

Colonel S H Browne, M D, C I E, Indian Medical Service, Bengal

Lieutenant-Colonel F F Perry, Indian Medical Service, Bengal

Lieutenant-Colonel W G H Henderson, Indian Medical Service, Bombay

Surgeon General W R Browne, M D, Indian Medical Service, Madras

Lieutenant-Colonel O P Lukis, M B, Indian Medical Service, Bengal

Surgeon General W L Gubbins, M B, C B, M V O, Army Medical Staff

Colonel W E Saunders, C B, Royal Army Medical Corps

Colonel W S Pratt, M B, Royal Army Medical Corps

Colonel H Hamilton, M D, C B, Indian Medical Service, Bengal

THERAPEUTIC NOTICES

THE International Jury of the Liege Exhibition have conferred upon Burroughs, Wellcome & Co., six Grand Prizes, three Diplomas of Honour and three Gold Medals for the scientific excellence of their products, including—

- 'Wellcome' Brand Chemicals
- 'Tabloid' and 'Solord' Brand Products
- 'Koplei' Preparations
- 'Tabloid' Brand Photographic Chemicals
- 'Hazeline' Preparations
- Pleated Compressed Surgical Dressings
- 'Tabloid' Brand Medical Equipments, etc

WE direct attention to the advertisements of Dr Weiss OXYGEN BATHS, which are much recommended, and the materials for producing which are easily obtainable at moderate cost

Dr Lohmstein's FERMENTATION SACCHAROMETER for undiluted urine is highly praised. It costs only 25/- and the results are said to be as accurate as they are rapid

ROBORAT is a wheat albumen. It is tasteless and odourless and is claimed to be an ideal food for children and invalids, especially those suffering from diabetes and gout.

Notice.

SCIENTIFIC Articles and Notes of Interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis if requested

Communications on Editorial Matters, Articles Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co., Calcutta

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co., Calcutta

Annual Subscriptions to the *Indian Medical Gazette*, Rs 12, including postage, in India Rs 14, including postage, abroad.

BOOKS, REPORTS, &c, RECEIVED —

- Diagnosis of Early Phthisis Turtan (J Bale Sons & Danielson)
- Inflammation of Conjunctiva. (J Bale Sons & Danielson)
- Practical Sanitary Science Somerville (Bailliere, Tindall & Cox)
- Prevention of Sonlity Macmillan & Co
- Military Hygiene Caldwell (Bailliere, Tindall & Cox)
- Sanitary Commissioner's Report, Punjab
- Bombay Hospitals Report.
- Jaipur Medical Report.
- Bombay Plague Hospitals Report
- Scientific Memoirs, No. 20
- Hygienic Laboratory, U S A., Bulletin, Nos 22, 23, 24

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

- Dr Parkinson, Fatchpur, Major Marnard I M S, Calcutta, Dr Choksy, Bombay, Capt McCarrison, I M S, Gilgit, Lt Col R Cobb, I M S, Madanpur, Lt Col Lealie, I M S, Simla, Major E Roberts, I M S, Bijnor, Simla, Capt D McCay, I M S, Calcutta, Major Marks, I M S, Bijnor, Major W Jennings, I M S, Poona, Major Boules, I M S, Madras, Lt Col Crawford, I M S, Hughli, Capt Dwyer, I M S, Major Chaytor White, I M S, Lucknow, Major K Prasad, I M S, Barua, Major O Duer, I M S, Canada, Dr Nettleship, London, Capt MacGillchrist, I M S, Simla.

Original Articles.

AN ANALYSIS OF 50 CONSECUTIVE ABDOMINAL SECTIONS FOR FEMALE PELVIC DISEASE

BY R. F. STANDAGE,

CAPTAIN, I.M.S.,

Residency Surgeon, Bangalore In charge, Lady Curzon Hospital for Women

IN the following tables I deal with a series of 50 consecutive cases of laparotomy for disease in the female pelvis. I performed all the operations at the Lady Curzon Hospital, and they are tabulated strictly in the order in which they occurred. These cases, however, do not represent all the occasions on which I have opened the abdomen, as I have confined my remarks to cases of female pelvic disease only. By doing so, I have thought that a better idea of the grave class of gynaecological cases presenting themselves for treatment in an Indian Women's Hospital, and also of the degree of success which might be expected in dealing with them, could be obtained. I have purposely, therefore, omitted all cases of abdominal section for uterine displacements, such as flexions and prolapse uncomplicated by disease, all cases of exploratory incision in which no operation was performed, and all sections for abdominal injuries, appendicitis, gastric disorders, intestinal obstruction, hernia and hepatic hydatids and abscess. Such cases, though they would more than double my numbers, and considerably decrease the mortality percentage shown in this report, I have decided to exclude, as they cannot be classed with pelvic diseases, and fall into separate categories of their own.

At first it seemed easy enough to draw a hard-and-fast line between cases which should be included, and those which should be left out. In going through my records, however, I found several cases which puzzled me. These were usually cases in which the condition found at the operation necessitated an amplification of the proceeding originally planned. Such a case is No. 27 in this series. My original operation was planned for the cure of the hernia, which could not be called a pelvic disease. I found the ovary and tube diseased and adherent in the sac, and I removed them, so I think I am justified in including this case in my list of laparotomies for pelvic disease. I decided to exclude Cæsarean sections, for although the contracted pelvis is certainly a pelvic disease, the operation does not aim at the cure of that condition.

I have somewhere seen it stated that to obtain reliable and instructive records, gynaecological operations should be recorded in the exact order in which they occurred, and in sufficient number to avoid the effect which a long series

of similar and successful operations would have on the results. In tabulating my fifty cases I have adhered strictly to the first of these dicta, as regards the second I would put forward, to excuse the smallness of the numbers recorded, the variety of the diseases treated, for, with the exception of malignant and fibroid disease of the ovary, almost every gynaecological pelvic disease is included in this record, so, though the operations can be grouped under few heads, there can be no question of the diseases found being invariably the same. Indeed, were Indian Surgeons to refrain from recording their results, more especially as regards gynaecological work, till something approaching the enormous number of cases published by operators in England, the Continent, and in America could be analysed, very few records would go to print. Except in the larger towns, India is not over well provided with hospitals entirely devoted to and equipped for the treatment of women's diseases, and moreover the people, and more especially the women, of India, have so well-developed a dread of the surgeon's art, that the cases consenting to operation make only a small percentage of those urgently requiring it. My own experience in this respect has been most painful, for, during the period (rather more than three years) in which these 50 cases occurred, quite double that number of patients attended hospital, for whom surgical treatment was the only chance, and was refused. Ovarian cysts and cases of operable uterine cancer were among these, as well as many fibroids, and one case at least of ectopic pregnancy. The number of such cases which I have been able to trace to their end, at home, or in some other hospital, makes a grievous record, but must be the common experience of every one working in an Indian hospital.

To turn to the cases in my list. They group themselves as regard the diseases found at the operations under seven heads: (1) Diseases of the ovary, (2) diseases of the ovarium, (3) diseases of the Fallopian tubes, (4) diseases of the uterus, (5) ectopic pregnancy, (6) diseases of the pelvic peritoneum, and (7) parasitic disease. Many of the cases exhibited disease of two pelvic organs, for instance, case 33 showed a pus tube as well as a uterine fibroid—and in classifying them here I have put each disease found under its own proper heading. This will explain the recurrence of the same number in different groups.

1. Of ovarian disease there were 24 examples, viz.—Nos. 2, 3, 5, 6, 7, 9, 10, 11, 12, 15, 16, 18, 19, 21, 23, 25, 27, 30, 34, 39, 41, 45, and 49. Of these thirteen were discovered during an operation for the removal of diseased appendages, and are included under that operation. The ovarian diseases treated were oöstitis 1 (No. 6), abscess 6 (Nos. 5, 11, 15, 23, 30, and 34), Graafian follicular cysts 7 (Nos. 3, 5, 10, 18, 19, 25, and 27), multilocular cyst-adenomata 7 (Nos. 7, 9, 12, 16,

39, 41, and 45), cysts of corpus luteum 2 (2 and 49), dermoid cyst 1 (No 21), intraligamentary cyst of the hilum of the ovary 1 (No 48)

2 Diseases of the parovarium Of these there were two examples One, No 32, a very typical parovarian cyst in a girl of 17, and the other (No 35) an enormous extra-peritoneal cyst of the right parovarium which had extended upwards behind the cæcum, separating the layers of the meso-colon

3 There were 28 cases of fallopian tube disease —Nos 3, 4, 5, 6, 10, 11, 13, 14, 15, 18, 19, 20, 22, 23, 24, 25, 27, 29, 30, 33, 34, 36, 38, 42, 44, 47, 49, and 50 Of these three (19, 27, and 34) are classed as salpingitis and were operated on for other concurrent disease Hydrosalpinx 4 (18, 38, 44, and 49), pyosalpinx 19 (single 11, double 8), hæmatosalpinx 2 (24 and 50) I have not included these two cases of hæmatosalpinx among ectopic pregnancies, as there was no rupture of the tube wall, or of the tubal mucosa in either case, nor could I, after a most careful search, demonstrate anything which looked like a sac or a foetus The large percentage of tubal diseases, and more especially of purulent, and presumably originally septic tubes, is remarkable, though hardly surprising in a large garrison town, where the gonococcus is rife, and where the untrained native midwife with her dirty hands and reprehensible practices still retains the confidence of the people

4 Of diseases of the uterus for which abdominal section was performed there were five examples—Nos 1, 26, 33, 40, and 46 Fibroids 3, carcinoma uteri 2 Of these No 33 was a very large typical submucous fibroid, the right fallopian tube being filled with pus

5 Not counting the two cases which I have classed as hæmatosalpinx, there were four cases of ectopic gestation (Nos 17, 28, 31, and 43) Of these three were tubal, and in two of them the tube had ruptured, about the second month, at the junction of the isthmus with the ampulla, one (case 17) between the layers of the broad ligament The third went to the fourth month without rupture The fourth case (No 31) showed an accessory ostium and a diverticulum, and the pregnancy was tubo-abdominal (See *IMG* for August 1904) I have operated on four other cases by the vaginal route, and, since I began the notes for this paper, have successfully operated, by the abdominal route, on another Hindu woman, with a rupture of the fallopian tube at the junction of the isthmus and ampulla, and a large pelvic hæmorrhage It is notable that in none of my native cases was there a history of sudden faintness and pain, though in all of them (except case 43 which was unruptured) the hæmorrhage was large Menstrual irregularity, a continuous red uterine discharge, a tender abdomen and a pelvic lump are all the guides one can count on in such cases

6 I have classed case 8 as a disease of the pelvic peritoneum, though hæmatocele should

be regarded rather as a sign than a disease There was no evidence to show where the original bleeding came from, and as the disease chiefly effected Douglas' pouch, which was obliterated, such a classification is as exact as can be expected

7 Case 37 might be included under heading 6, as the original cyst occurred in the peritoneal covering of the bladder (See *IMG* for May 1905) I think, however, that it is more accurate to put it under a heading of its own, as, at the operation, I did not deal with the original cyst, but with eight others which were, but for adhesions, free in the peritoneal cavity

The 50 operations performed for the relief of these diseases are as follows —

Ovariectomy	12 operations with 2 deaths
Hysterectomy or Myomectomy	5 " " 2 "
Removal of uterine appendages	26 " " 2 "
Operations for ectopic pregnancy	4 " " 0 "
Operation for pelvic hydatis	1 " " 0 "
Operation for pelvic hæmatocele	1 " " 0 "
Drainage of pyosalpinx	1 " " 0 "

The mortality of 6—or 12 per cent—is perhaps higher than it should be, or no doubt would be, if cases came earlier for treatment I have refused operation in no case in which I thought there was a reasonable chance of relieving the patient, and have, indeed, opened the abdomen, at the urgent request of the patients, in several cases of inoperable uterine cancer in the hope that a closer inspection would show some way of clearing out the disease Native patients come to hospital too frequently as a last resource, begging for operation to relieve them of their sufferings, and, if operation is refused, they go away and revile the impostor who could not cure them For months, perhaps years, they have subjected themselves to native treatment, which in many cases is disastrous in its results Massage, blisters, or the actual cautery, applied to ovarian cysts, are a fertile source of adhesions, and I feel sure that had we been allowed to treat case 45 by ovariectomy six months earlier, she would now be alive and well Similar cases were Nos 29 and 36, neglected tubal disease with dense pelvic adhesions, completely incapacitating the patients In case 40 I regret that the apparent difficulty of delivering the uterus through the thick abdominal walls made me enucleate fourteen fibroid tumours instead of performing a supra-vaginal hysterectomy The time saved in the latter operation might have saved the patient's life I also regret that I did not drain the pelvis in No 48—a septic case from the outset, though I did not suspect it Case 46 was a woman weakened by long continued copious hæmorrhage In the whole series I can only remember one case—No 39—which might be said to have benefited at all from native treatment In this case an adhesion between the cyst and the abdominal wall, after

vigorous cauterizing, resulted in a fistulous opening near the umbilicus, through which the contents of the cyst were discharged, the cavity ultimately, after energetic curetting in hospital, being obliterated.

It is pleasant, in turning from statistics of mortality, to be able to record that eighteen patients have reported themselves again at hospital, well, and able to work, months after their discharge. Among these was one case of carcinoma of the uterus, who was operated on (pan-hysterectomy) on 16th September, 1903, and who is still alive,* and three patients (Nos 16, 21, and 30) were safely delivered of living children, in hospital, after operations for diseased pelvic organs.

As regards technique, all these operations, with the exception of No 27, were performed through median line incisions varying from $2\frac{1}{2}$ inches to 10 inches long. In No 48 I had to prolong the incision above the umbilicus to deal with the adhesions in the upper abdominal zone. Adhesions in most cases were separated by the fingers, very dense ones being ligatured and cut with curved scissors.

In one operation only, No 37, was intestine wounded while separating adhesions, it was immediately sutured and gave no subsequent trouble. The omentum had to be dealt with in several operations, either by ligature and incision or by careful separation from the diseased organ with the fingers. In one case, No 22, it required ligature and division in its entire breadth. The vermiform appendix was found diseased and adherent in two cases, Nos 22 and 30—and was amputated. In one case, No 26, the bladder was opened while separating it from the uterus, it was sutured and gave no further trouble. All intra-abdominal ligatures and sutures used for

pedicles, fibrous adhesions, omentum, wounded intestine or bladder, or in suturing the pelvic peritoneum after hysterectomy were of silk, very fine for sutures and ordinary ligatures, stout for pedicles. In only one case was there subsequent trouble from any of these, in case 31 the ligatures placed on the fallopian tube and on the ovarian ligament, caused a sinus from which they were removed at a later operation. Drainage was employed in five cases, Nos 8, 34, 36, 37, and 47. Two of these were drained through an abdominal incision by Keith's tubes packed loosely with gauze, two per vaginam by gauze packs, and one, No 35, was a large parovarian cyst drained by rubber tubing. Irrigation with sterile warm water, or very weak boric lotion was used in all cases where loose clots or shreds of adhesions, or cyst contents, were in the peritoneal cavity, otherwise the field of operation was spoused dry and the wound closed. In all my earlier cases the abdominal wounds were closed by stout silk-worm gut interrupted sutures, taking up all the parietal structures, but not perforating the peritoneum. This method I practised up to case 30, and know of two cases, Nos 5 and 26, in which a hernia has resulted. I now unite the abdominal wound in three layers, by continuous sutures. I have seen no case in which, after this method, the scar has yielded, and, so long as I used kangaroo tendon for the two buried sutures, have had no trouble from stitch sinuses. For economical reasons I gave up kangaroo tendon for catgut sterilized in boiling alcohol, but cannot speak favorably of the result, as I have had several troublesome stitch abscesses and sinuses, though none of them occurred among the cases I am now reporting. I have also tried fine silk, sterilized by boiling for 30 minutes, for buried sutures, but without the invariable success which followed the use of kangaroo tendon.

* She is now in hospital, with no sign of recurrence, awaiting an operation for ventral hernia (5th November 1905.)

TABULAR STATEMENT

E = European Eur = Eurasian H = Hindu. M = Mahomedan N O = Native Christian R = Recovered D = Died

Number	Age	Married or single	Place or caste	Number of children	Miscellaneous	Signs and symptoms	Condition found at operation	Operation	Result	REMARKS.
1	35	M	N C	NH	NH	Rounded mass in Douglas' pouch, size of an orange. Pain Menorrhagia Emaciation	Subserous fibroid of posterior uterine wall	Myomectomy	R	A soft fibroid about the size of a tennis ball, easily shelled out from uterine muscle. Wound in muscle sutured with deep silk stitches
2	26	M	H	1	1	Dysmenorrhœa, 4 years Elastic rounded tumour, size of a cricket ball to right of uterus.	Cyst of corpus luteum	Ovariectomy	R	Abdominal wound closed by silk sutures
3	25	M	H	4	1	Twisting pain in left lower abdomen Tenderness over the same area, also on both sides P V Rounded elastic tumour to R. of uterus Symptoms date from birth of last child, 6 months	Right pyo salpinx Left salpingitis Ovary cystic, enlarged Graafian follicles	Both appendages removed	R	Patient admitted three times before consenting to operation Finally consented owing to severity of pain
4	25	M	M	2	NH	Severe pain and fever. Pain in lower abdomen Hard, painful, irregular mass in right iliac region P V both fornices full and tender	Double pyo salpinx	Both appendages removed	R	Patient gave a history of injury 11 days before admission, so the question of hæmatocele was raised. Diagnosis settled by vaginal aspiration before operation
5	21	M	N C	NH	NH	Dysmenorrhœa constant since marriage Tenderness in iliac regions Yellow discharge from os uteri Fever of a hectic type P V Irregular masses on each side of uterus	Double pyo salpinx Right ovarian abscess Left ovary cystic (Graafian)	Both appendages removed	R	Adhesions on both sides very firm Both tubes greatly thickened and distorted, and distended with pus Operation 28th September 1901 Patient seen again 20th August 1903 Some separation of abdominal muscles No pain or discomfort since operation Menstruated regularly till 7 months ago Came for treatment for amenorrhœa
6	30	M	Eur	NH	NH	Fever Dysmenorrhœa and pain in right lower abdomen and back P V Round, hard, movable mass in right post quarter	Right pyo salpinx and ovaritis	Right appendages removed	R	Pain in lower abdomen and back since marriage five years previously In April 1897, left ovary and Fallopian tube removed in Madras Maternity Hospital by Col Branfoot, M.S. Had no return of pain till 2 months ago Col Branfoot was present at this second operation, 30th October 1901. Seen several times since operation Pelvic pain entirely relieved
7	30	M	N C	7	1	Pelvic pain and painful and difficult micturition P V A lump the size of an orange on each side of uterus, elastic, rounded	Double ovarian cyst	Double ovariectomy	R.	Cysts multilocular, filled with yellow jelly like fluid. Hæmatocele into part of left cyst, probably the result of a fall during last pregnancy, 20 months before admission Has been seen at hospital several times since operation Has no discomfort and wound is sound
8	19	M	H	NH	NH	History of one year Pelvic pain and an enlarging tumour Tumour and dullness extends above pubes for 4 inches Flanks resonant Bimanually mass behind and to left, elastic, moving with uterus Evening fever for past month No history of sudden onset	Old pelvic hæmatocele	Sac laid open and drained with Keith's tube	R	This was thought to be an ovarian cyst. Peritoneum adhered intimately to the tumour. While separating the peritoneum pus welled up and a cavity was entered leading into Douglas' pouch, containing pus and degenerated blood clot. Cavity washed out Rapid recovery

9	25	S	Eur	1	NH	Pain in left iliac region, and in lumbar region. Irregular and profuse menstruation. Pains very severe for 3 months. P V Tense, elastic, rounded, movable tumour in left posterior quarter, size of a coconut	Left ovarian cyst	Ovariectomy	R	Multilocular cyst. Seen many times since operation. No further pelvic pain. Wound sound
10	30	M	Eu	6	NH	Right iliac pain and fever. Pain very severe. Unable to straighten legs on account of it. Menorrhagia and dysmenorrhœa. Examination P V in possible owing to pain. Under O H Cl, mass to left and behind uterus	Double pyo salpinx. Hemorrhagic cysts in ovaries	Both appendages moved	R	Adhesions to pelvic wall on both sides. Had had no further trouble since operation. Has been frequently treated in hospital since the operation for tertiary ulcers of leg
11	29	M	E	1	1	Never well since abortion, 3 years before admission. Pelvic pain and inability to put left leg straight. Irregular profuse and painful menstruation. Brownish discharge from os uteri. Pain much worse during past month. P V Left Fallopian tube enlarged and painful	Double pyo salpinx. Left ovarian abscess	Both appendages moved	R	Patient stopped breathing during operation, restored by artificial respiration. Letter from husband, a sergeant in the army, one year after operation stating that his wife was quite well and free from pain. Before her discharge from hospital had an attack of severe headache, fever and epistaxis, the result of the artificial menopause. Had one similar attack after leaving hospital
12	24	M	N C	4	NH	Severe pain in left iliac region for 2 years. Leucorrhœal discharge for same period. Menorrhagia for 3 months. P V Globular, tense, elastic swelling in left posterior quarter, as big as a cricket ball	Left ovarian cyst	Ovariectomy with removal of left Fallopian tube	R	Left Fallopian tube inflamed and adherent to rectum, and cyst adherent to posterior wall of broad ligament necessitating enucleation. Patient reported at hospital 3 months after discharge. Menstruation normal since operation. Wound sound
13	26	M	Eur	1	NH	Pain in left iliac region slight since birth of only child 9 years ago. Severe for 20 months. Occasional fever. Leucorrhœal discharge. P V Tender mass to right of uterus	Right pyo salpinx	Right appendages moved	R.	Recent adhesions, easily separated. Patient seen 14 months after operation. Looking remarkably well and with no pelvic trouble. It is worthy of note that this patient's pain was always referred to the left. Her disease was on the right
14	45	M	H	2	NH	Dysmenorrhœa, and menorrhagia for 18 months. Menorrhagia for 20 days. P V Tumour in left posterior quarter, as big as an orange, evidently adherent to uterus	Left pyo-salpinx	Left appendages moved	R.	Mass of tortuous dilated tube and ovary adherent to broad ligament, pelvic wall and rectum enucleated with some difficulty
15	30	M	N O	3	NH	Left pelvic pain and fever. Menorrhagia, and a sensation of "a lump" in pelvis. These symptoms date from last labour 5 years ago. P V Rounded mass to right and posterior, elastic, tender. Yellow tenacious discharge from os	Double pyo salpinx. Double ovarian abscess	Both appendages moved	R	Recent adhesions to parietal peritoneum, broad ligament and pelvic wall of large mass on right. Left ovary and tube low down and adherent in Douglas' pouch
16	23	M	H	2	NH	Left pelvic pain and amenorrhœa, since birth of last child 18 months ago. P V Retroflexion of uterus. Right ovary as large as a tennis ball and elastic, a small cyst on its surface ruptured during examination. Purulent discharge from os	Right ovarian cyst. Retroflexion of uterus	Ovariectomy, with removal of right Fallopian tube. Suspension of uterus	R	Small multilocular cyst. Left tube and ovary healthy. Patient admitted 22 months after operation to the Maternity for her third confinement. Delivered of a healthy female child weighing 5 lbs. Note by Lady doctor says: "Patient left hospital with abdominal wound simply perfect, it had not given way at all during pregnancy or labour."

TABULAR STATEMENT — (Contd.)

Number	Age	Married or single	Race or caste	Number of children	Miscellaneous	Signs and symptoms	Condition found at operation	Operation	Result	REMARKS
17	32	M	E	1	NH	One child nine years ago. Some "uterine complaint" (probably endometritis) ever since. Missed two periods, had tenderness of the breasts and "crampy" pain in lower abdomen. Pain suddenly increased causing her to faint, when 24 months pregnant. Recovered from collapse and was sent from Salem to Bangalore for operation. P V Irregular, well defined, tender swelling to right of uterus. Brownish shreddy discharge.	Intraligamentary rupture of tube (right)	Ligature of mesosalpinx. Removal of right tube and ovary and mass of clot between layers of mesosalpinx.	R	The tumour (blood clot) was enclosed between the layers of the mesosalpinx and so was free in the abdominal cavity. On grasping it, to bring it out of the abdominal cavity, the narrow neck attaching it to the site of the rupture in the tube broke and the tumour came away. Free haemorrhage took place from broken part which was controlled by clamps. Ligature of the mesosalpinx and amputation of the tube and ovary completed the operation. I have heard several times from this patient since the operation, she is quite well and has no further trouble.
18	25	M	H	2	1	Left iliac pain, aggravated by movement. Painful micturition and defecation. Symptoms date from last confinement, 2 years. P V Oval, elastic, tender swelling, as big as an orange, to left of uterus.	Hydro salpinx of left tube. Cyst of left ovary.	Left appendages removed.	R	Tube and ovary adherent giving the appearance of one large cyst. Patient seen at hospital a year after discharge. For last 3 months had pain in left iliac region before and after menstruation. P V tenderness to left of uterus. Not seen again in hospital since 15th October 1903.
19	25	M	H	NH	2	Pain in back and amenorrhoea for 10 months, dating from last abortion. P V Hard mass in right posterior quarter, adherent to uterus and broad ligament. Fundus of uterus tightly adherent in Douglas' pouch.	Right salpingitis and cystic ovary. Retro flexion of uterus.	Right appendages removed. Suspension of uterus.	R	Very firm adhesions. Left tube and ovary healthy.
20	30	M	N O	1	NH	Hypogastric pain for two years. Prolapse of uterus. P V Tender fixed mass in Douglas' pouch and extending outwards on either side. A yellow tenacious discharge from os.	Double pyo salpinx.	Both appendages removed. Hysteropexy.	R	Adhesions to omentum, colon and rectum, easily separated. Ovarian substance given for head-aches, the result of artificial menopause. Seen well 8 months after operation. Slight yielding of recti muscles.
21	29	M	Em	2	1	Admitted during a menstrual period complaining of great pain. Said that she had great agony at every period for 3 months. She had similar pain 6 years ago, and to a lesser degree from time to time till admission. A large soft, round, acutely tender tumour to left and quite close to uterus.	Dermoid cyst of left ovary.	Ovariectomy.	R	Cyst as big as a coconut, contained hair growing from part of epithelial lining of sac. Eleven months after discharge, patient admitted to the Maternity 9 months pregnant giving a record of perfect health since her discharge. She was delivered 5 days after her second admission of a healthy boy weighing 7 lbs. Labour normal lasting 4 hours and 10 minutes. No trouble in the womb before or after delivery.
22	40	M	H	1	NH	Admitted for two days' retention of urine. Pelvic pain (right) and fever. P V Tumour size of head of a baby of six months in Douglas' pouch and to right. Prolapse of uterus.	Right pyo salpinx.	Right appendages removed. Vermiform appendix removed. Hysteropexy.	R	Adhesions to omentum, uterus, rectum, small intestine, broad ligament and vermiform appendix. Appendix contained a stercolith. Tube contained 6 ounces of pus. Case reported in I.M.G., February 1904.
23	24	M	N O	NH	2	Right pelvic pain and fever. Pain during micturition. P V Uterus enlarged, a hard indefinite mass in Douglas' pouch, and a large, globular, elastic tumour to right of uterus.	Right pyo salpinx. Right ovarian abscess.	Right appendages removed.	R	Numerous recent adhesions. Left tube and ovary healthy.

24	23	M	E	NH	Hypogastric pain, painful micturition, fullness and nausea for a fortnight. One period missed a month before admission. Hypogastrum exceedingly tender. P V Very tender mass as big as a coconut to left of uterus. Vaginal pulsation. No history of previous trouble. Was examined to ascertain cause of sterility 4 years before admission. Informed that she had "ulceration of the womb."	Hemato salpinx (?) tubal gestation)	Left appendages removed	R.	Left tube converted into a large thick wall, sac containing about 12-15 ozs of blood clot and serum. No fetus found. Ovary had many small cysts, some of which also contained blood clot, and the cavities of which were lined with a "yellow pyogenic membrane." One well marked corpus luteum. Seen several times since the operation (2 years ago) in excellent health.
25	26	M	H	1	Dysmenorrhœa for 4 years. Scanty flow, continuous pain in pelvis for a month, and a half, constipation and painful micturition. Pain down thighs. P V Small globular tumour, elastic, to left and behind uterus.	Left ovarian cyst pyo salpinx	Ovariectomy of left tube	R.	Small unilocular cyst as big as a turkey's egg. Tube contained about an ounce of greenish yellow pus. No adhesions.
26	33	M	N O	5	Metrorrhagia for 5 months. Of late bleeding almost continuous, especially copious after any exertion. Clots. An offensive discharge. Much exhausted from continual loss of blood. P V Friable bleeding growth from cervix filling upper part of vagina. Uterus enlarged but freely movable. No thickening of broad ligaments.	Adenoid carcinoma of cervix uteri	Abdominal terectomy	R.	Abdominal route chosen owing to small vaginal space and large uterus. Appendages removed with uterus. Uterine artery ligatured, close to origin on either side. Bladder accidentally torn while separating it from front of uterus, united by continuous suture. Patient seen again 5th January 1905, 16 months after operation. P V No pain or tenderness, but on left side a small detached tumour as big as a normal ovary was felt. Nothing else felt suggesting recurrence. The abdominal recti muscles had yielded in the whole extent of the wound resulting in a large hernia. Advised to come for operation for this. Not seen since.
27	24	M	N O	NH	Ventral hernia on left side through wound in abdominal wall, midway between Poupart's ligaments and umbilicus.	Ovary and Fallopian tube adherent in sac	Sac removed Ovary and Fallopian tube removed. Edges of wound in abdominal muscles sewn up.	R.	Ovary and Fallopian tube both diseased. Ovary cystic. Some cysts containing pus. Embriated extremity of tube obliterated.
28	33	M	N O	1	One child born 10 years ago. Uterine hæmorrhage for 2 months, retention of urine for one day. Periods irregular for 2 months previous to onset of bleeding. Pelvic pain constant since onset of hæmorrhage. P V Uterus pushed forward against pubes. Large, hard, irregular mass behind and to left. Uterus movable. Abdomen very tender.	Left tubal gestation (ruptured)	Mass of blood clot removed from Douglas' pouch Left Fallopian tube amputated	R.	Rupture of tube had taken place at junction of ampulla and isthmus. Absolutely no history of a sudden attack of pain, though Douglas' pouch and left side of pelvis completely filled with clot. Fetus, about one inch long, found in blood clot. Rupture probably took place at beginning of second month.
29	28	M	N O	1	Dysmenorrhœa for 10 months of late—2 months—described as "unbearable." Pain comes on 10 days before flow and lasts for some days afterwards. Constant dull pain in thighs and sacrum. Rectal tenesmus. Fever. P V Thick yellow discharge from os. Hard tender mass behind uterus.	Double pyo salpinx. Re- troflexion of uterus	Both appendages removed Suspension of uterus	D.	Adhesions to omentum, pelvic wall, broad ligament, rectum and (on left side) colon were very dense. Patient stood operation well and did well for 3 days after. She suddenly exhibited extreme dyspnea, the pulse failed and she died in two hours. Cause of death? pulmonary embolism. P M not allowed.
30	20	M	N O	NH	Married 2 years. Symptoms date from 7 months before admission. Metrorrhagia, dysmenorrhœa. Pelvic and sacral pain. Rectal pain during menses. Fever. P V Body of uterus pushed to left. Cervix low, looking to right. Hard mass to right of body of uterus.	Right pyo salpinx and ovarian abscess.	Right appendages removed Vermiform appendix removed	R.	Fallopian tube embedded in recent adhesions to large intestine, uterus, rectum and vermiform appendix. Vermiform appendix also adherent to pelvic wall. Patient was admitted to Maternity 16 months after operation, and was delivered of a healthy female child weighing 5 lbs 4 ozs. The abdominal wound was quite firm and did not yield during her pregnancy or confinement.

TABULAR STATEMENT—(Contd.)

Number	Age	Married or single	Race or caste	Number of children	Miscellaneous	Signs and symptoms	Condition found at operation	Operation	Result	REMARKS
31	25	M	Enr	1	Ntl	Period suppressed 3 months before admission Five days after date for next menstruation period, uterine hemorrhage began and continued till admission to hospital Tenderness over lower abdomen Grind ing pelvic pain on right side P V Rounded tumour behind and to right of uterus Milk in breasts.	Right tubo—abdominal gestation	Gestation sac with right appendages removed	R	The Fallopian tube when removed showed an accessory ostium and a diverticulum Case reported in <i>I M G</i> for August 1904 Patient reported at hospital three months after her discharge complaining of a discharging sinus in the wound The sinus was explored and led down to the two ligatures which had been placed on the tube and ovary These were removed and the sinus healed quickly She has been in perfect health since
32	17	S	E	Ntl	Ntl	First seen 4½ months before admission Note on case "dull tumour in hypogastric region" On admission tumour extended to umbilicus No souffle, no fetal heart P V Under C H Cl, uterus distinct from tumour which evidently contained fluid and bulged to right and in front of uterus Fluid drawn off by fine needle, S G 1002 White precipitate with Ag NO ₃	Right parovarian cyst	Ovariectomy	R	Cyst rather bigger than a Rugby football Fallopian tube stretched over it measured 15 inches Well marked pedicle Cyst removed entire through 6 inch incision Patient made an untroubled recovery and has been quite well ever since, with the exception of some swelling of the left leg
33	40	M	N C	3	Ntl	Painful and profuse periods for 3 years Fever Lately painful micturition and defecation Tumour in lower part of abdomen, size of 6 months' pregnancy Tumour solid, rounded and movable No souffle, no fetal heart. P V Same tumour felt, moving with uterus Sound passed 7 inches	Submucous uterine fibroid	Supra vaginal hysterectomy	R	Both tubes and ovaries were removed with the uterus and growth Right Fallopian tube distended and containing about 4 ccs pus Peritoneum of pelvic floor closed by continuous fine silk suture
34	30	M	N C	2	1	Pelvic pain and tenderness for 6 months Lately fever and shivering P V A tender hard mass in Douglas' pouch, extending outwards to both sides	Double ovarian abscess Salpingitis	Both appendages removed	R	In separating adhesions pus welled up from pelvis Cavity laid open and washed out, and disintegrated ovaries and obliterated tubes enucleated from mass of inflammatory tissue behind broad ligaments Pelvic cavity washed out, and drained by Keith's tubes
35	47	M	N C	2	5	Pelvic pain and amenorrhoea for 6 years Abdominal swelling for 1 year Large abdominal tumour—size of a full term pregnancy—measured 30 inches around most prominent point. Distinct thrill, dull, resonant in flanks P V Complete prolapse of uterus	Right parovarian cyst.	Cyst drained totalpexy	R	No pedicle to cyst could be demonstrated Cyst had extended behind peritoneum of pelvic wall and upwards between layers of mesocolon Colon displaced to left After emptying cyst attempt made to dissect it out from between peritoneal layers Patient became collapsed, so attempt was abandoned and cyst wall secured in parietal wound and cyst drained Recovery uninterrupted Left hospital with no prolapse, and no signs of original tumour
36	34	M	N C	Ntl	Ntl	Metrorrhagia for 6 months, Of late very severe Accompanied by pelvic pain which completely incapacitates her Had been under treatment for 2 months in another hospital P V Hard, fixed mass behind and to right of uterus Very adherent to uterus	Right pyosalpinx	Right appendages removed	D	Adhesions to uterus, broad ligament and particularly to the rectum, very old and very firm Enucleation of tube, which contained an ounce of pus very tedious. Patient left table very collapsed rallied during afternoon a little, but collapsed again at night and died at 7.20 A M

AN ANALYSIS OF 50 CONSECUTIVE ABDOMINAL SECTIONS FOR FEMALE PELVIC DISEASE.

BY CAPTAIN R. F. STANDAGE, I.M.S.,

Residency Surgeon, Bangalore In charge, Lady Curzon Hospital for Women



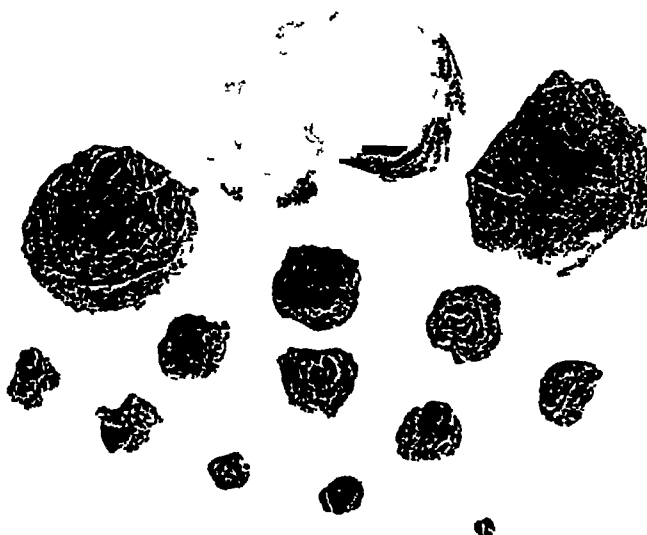
Large submucous fibroid, with right pyo salpinx, removed in case 33 The black rod is passed through the cervical canal



The cyst removed in case 32 Bristettes passed into each end of fallopian tube, that on the left hand being in the uterine end
The spreading out of the fimbriae is well shown

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Fourteen subserous and interstitial fibroids removed in case 40



The left fallopian tube and gestation sac with fetus in situ removed from case No. 48. The left lower thread passes through the tube wall near the fimbriae, the right one through the sac. The upper thread supports the tubal mucosa and the attached sac.

7	20	M	M	3	NH	Abdominal discomfort and loss of appetite for a year. Pelvic and abdominal pain for 6 months. Two lumps in abdomen for about the same time. Severe pain for 3 months. Anorexia, vomiting and obstinate constipation for 1 month. Small tumour in abdomen, size of 6 months' pregnancy. Flanks resonant. P. V. Uterus pushed forward by tumour in Douglas' pouch. Two elastic tumours in iliac fossa.	Pelvic hydratids	Six hydratid cysts evacuated from adhesions and removed. One drained through vagina. One ruptured during enucleation, endocyst removed, ectocyst cut away.	R	A case of primary hydratid disease of the bladder wall. Original cyst had probably ruptured during last pregnancy filling pelvis with daughter cysts. Cyst in right iliac fossa was adherent to omentum, appendix vermiformis and small intestine. Intestine injured in freeing adhesions. Cyst behind right broad ligament ruptured during enucleation. Endocyst washed out. Case reported in <i>I M G</i> for May 1905. Seen several times since discharge, doing well.
18	28	M	M	1	NH	Pelvic pain and dysmenorrhoea for 10 years. Relieved from time to time by palliative treatment in hospital. Severe pain in lower abdomen for 10 days in ability to walk, painful defecation. P. V. Tender, elongated tumour in Douglas' pouch apparently attached to uterus. Confinement in maternity 5 months before operation. Child ill nourished, weight 3 lbs. After confinement, elastic abdominal tumour noticed, which she states was present since birth of first child. Tumour measured 4 1/2 ins round umbilicus. Adherent to level of about parietes of umbilicus. Operation refused. Went out for native treatment. Returned after 4 months with sinus at umbilicus, discharging foul pus. Explored, cavity about size of a cricket ball curetted. Sinus healed, 2 weeks after curetting. P. V. Second tumour (cyst) found in connection with left ovary, as big as a cocoanut.	Right hydro salpinx	Right Fallopian tube removed	R	Tube knicked and bent backwards on itself at about 3/4 in from uterine cornu and lying in Douglas' pouch. Ampulla greatly distended and containing 2 1/2 ozs of serous fluid. Fimbriated opening obliterated. Adhesions to omentum and rectum filamentous, very firm to broad ligament and back of uterus. Meso salpinx much shortened. The cyst which had discharged through the abdominal wall was found shrunken and adherent to the parietes close to the umbilicus. The right Fallopian tube, stretched from the uterine cornu to this point, formed a band, beneath which the hand could be passed. The left cyst was multilocular and about the size of a cocoanut.
19	30	M	N C	3	NH		Ovarian cyst (left)	Ovariectomy	R	
10	40	M	M	1		Abdominal pain. Exceedingly severe for the past few months. Confined to bed. P. V. Large, hard, irregular mass reaching to umbilicus.	Multiple fibroids	subserous	D	Over 5 inches of fat on abdominal wall. Myomectomy performed owing to difficulty in delivering uterus for supravaginal amputation. Fourteen tumours, two of which were calcareous, shelled out easily from uterine muscle. Hemorrhage slight. Patient died from shock. The cyst wall was plum coloured and the gelatinous contents of the cyst everywhere infiltrated with blood. There were 2 1/2 complete twists of the pedicle. Patient arrived on the operating table with a scarcely perceptible pulse, and left it with a fairly good one. Cyst contained over a gallon of dark purplish fluid. Recovery untroubled.
41	40	M	N C	2		States that she was quite well with a flat abdomen 5 months ago. Four months ago a swelling appeared in right iliac fossa and rapidly increased to present size. No discomfort till 4 days ago when pain became acute. Measurement 3 ins, below umbilicus 3 1/2 ins. Large abdominal fluctuating tumour, size of a full time pregnancy. Became pulseless and collapsed shortly after admission, so operation performed at once.	Ovarian cyst (twisted pedicle)	Ovariectomy	R.	
42	34	M	H	5	NH	An attack of gonorrhoea 3 months ago, since which constant abdominal pain, and lately inability to stand or walk. P. V. Large tender swelling in Douglas' pouch.	Double pyo salpinx	Both appendages removed	R	Both tubes adherent in Douglas' pouch and full of pus. Tissue of uterine end of left tube necrotic, ligature cut through and tube broke off. Purse string ligature put in muscle of uterine cornu.
43	25	M	N C	3	NH	Last confinement 2 1/2 years ago. Menses regular till 3 months before admission. At time of first missed period and of subsequent one, also missed, there was great abdominal pain. Great abdominal tenderness. P. V. Tender, fusiform, "sausage like" swelling in region of left Fallopian tube. Thick, tenacious, red uterine discharge.	Left tubal gestation	Left Fallopian tube with gestation sac removed	R.	Tube unruptured. Sac filling ampulla. Some bleeding through fimbriated opening into abdominal cavity. Foetus 3 ins long, sex indistinguishable, but fingers, toes and nails perfect. Umbilical cord twisted—probably third month foetus.

TABULAR STATEMENT — (Contd.)

Number	Age	Married or single	Race or caste	Number of children	Miscarriages	Signs and symptoms	Condition found at operation	Operation	Result	REMARKS
44	19	M	Eur	Nil	Nil	Left iliac pain 5 years ago (!) Very severe for 2 years P V Fluctuating tumour in left posterior quarter	Left hydro salpinx	Left Fallopian tube removed	R	Left tube contained 2 ozs of serous fluid Adhesions to uterus and broad ligament. Right tube and ovary normal
5	45	M	H	2	Nil	Enlargement of abdomen noticed "for one year". Native treatment for 6 months during which tumour rapidly increased in size Amenorrhoea 2 months Emaciation Abdomen enormously distended by a fluctuating tumour Greatest circumference, above umbilicus, 38½ inches (though a small woman), an inch bigger when standing Abdominal surface hot.	Left ovarian cyst	Ovariectomy	D	Adhesions firm and very general Tumour had to be separated from the entire extent of the anterior abdominal wall, from the liver, stomach, peritoneum covering kidneys, omentum, transverse colon and ileum About 3½ gallons of thick greenish fluid were evacuated Patient left table in very fair condition, but collapsed 4 hours later
46	35	M	N C	8	Nil	Menorrhagia and metrorrhagia for 2 years Laterally pain, and for 3 months continuous hemorrhage Marked anaemia P V "Cauliflower" excrescence filling vagina. Vaginal wall apparently free from growth, uterus enlarged, movable	Carcinoma uteri	Abdominal panhysterectomy	D	Vaginal growth curetted a week before radical operation Patient nourished and stimulated for operation Right broad ligament involved towards vagina, necessitating dissection in pelvic connective tissue Hemorrhage controlled by ligature of uterine artery close to origin Died from shock
17	50	M	N C	4	Nil	Complained of pelvic pain On examination P V about 4 ozs of pus escaped through a recto-vaginal fistula, about 1½ ins from vulval outlet No discharge from vaginal wall or from os Hard round ed mass to left and behind uterus Per rectum with Kelly's proctoscope, sinus discharging pus found on anterior rectal wall	Left pyo salpinx	Pus evacuated and tube drained per vaginam	R	Pyo-salpinx treated as a preliminary to repair of recto vaginal fistula Adhesion to rectum which doubtless was also the site of the tubo-rectal fistula, very broad and firm So abdominal enucleation of pus tube abandoned for vaginal puncture and drainage All discharge ceased in 6 weeks Recto vaginal fistula repaired by flap splitting operation Left hospital quite well 2 months after admission
48	44	M	E	10	1	Pelvic pain and swelling for 18 months For 3 weeks before admission had fever, diarrhoea and increase of pelvic pain Exceedingly tender tumour in left iliac region P V Same tumour felt behind and to left of uterus	Left ovarian cyst (suppurating)	Ovariectomy	D	Adhesions to bladder, rectum, meso colon, uterus and broad ligament. In separating latter, one locule of cyst ruptured, discharging 2 ozs of pus into abdominal cavity Abdominal cavity irrigated and completely cleansed Patient died from sepsis on 6th day
49	31	M	N C	2	Nil	Right pelvic pain and fever Worse for the past 4 months P V Left tube much thickened, indefinite tumour on right.	Double hydro salpinx	Right appendages removed Left Fallopian tube removed	R	Very general adhesions About an inch of the uterine end of each tube was normal, the rest was dilated and filled with serous fluid Embryonated openings obliterated Right ovary showed a corpus luteum cyst, about the size of a pigeon's egg, containing recent clot
50	40	M	H	1	Nil	Menstrual history normal Twenty days ago, while lifting a sack of grain, had sudden excruciating pain in lower abdomen Menstruation occurred 2 days later and bleeding continued till admission Pain continuous P V Mass behind and to right of uterus Feeling of fluctuation in its upper part Free sanious uterine discharge Pain much increased by examination	Right hæmato salpinx (? tubal gestation)	Right Fallopian tube removed	R	Right tube buried in very old adhesions and fixed to back of uterus Examination after removal showed it to be filled with recent clot No fetus found Right ovary not seen, surrounded by adhesions. Recovery uninterrupted

EXTRACTION OF CATARACT IN THE CAPSULE

By H HERBERT, F.R.C.S.,

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ONE is bound to admire Major Henry Smith's cataract work at Jullundur, the enormous amount of successful work done and the benefit conferred upon large numbers of people. His name should be permanently associated with the operation of extraction of the lens in its capsule, because of his having shown, first, the surprisingly low rate to which the escapes of vitreous may be reduced in this operation, secondly, the noteworthy freedom fromritis as a complication. Ophthalmic surgeons in general, who never perform extraction in the capsule as a routine operation, must admit that it is probably the correct procedure under the conditions obtaining in the Punjab. There the operator attains to an extraordinary degree of skill,* while the pressing demands upon his time and upon the hospital accommodation necessitate an operation which is quickly performed, and which is followed by rapid recovery, and which gives at once a final and satisfactory result. Now, however, the Jullundur practice is being followed apparently elsewhere in India by junior surgeons. One of the latter, Captain Oxley, writes in the *Indian Medical Gazette* for December 1905, recommending extraction in the capsule even to beginners, though Major Smith considers it "not an operation for the inexperienced." Under the circumstances it appears perhaps advisable to re-state and re-examine the fundamental objections to the operation as a routine method of treatment.

The operation violates the essential conservatism of correct surgery in that it introduces a risk unnecessarily, *ie*, for the sake of advantages which can be obtained without risk. We are told that escape of vitreous, which we all fear, occurs under skilled hands but slightly oftener than in ordinary extraction, and that the quantity lost is nearly always small, and that the accident is, therefore, negligible. Major Smith's percentage of escapes, between 6 and 7 per cent, given in 1903 and again in 1905, probably closely approximates to the lowest attainable by this method of operating. Captain Oxley's figures,—12 losses in 40 operations,—are perhaps a fair index of what the beginner must expect. How do these rates compare with those of ordinary extraction? At the Cowasjee Jehangir Ophthalmic Hospital, Bombay, in the year from December 1st, 1904, to November 30th, 1905, there were 609 extractions, excluding linears. Of these 35 were performed by downward section, in patients

who could not fix their eyes steadily downwards. These are placed apart because I did not realise, till quite lately, the advisability of substituting a retractor for the lid-speculum in these operations (at least in all cases with the slightest retraction of fornices from scarring). Through using the speculum in the earlier operations, there was an extraordinary number of vitreous escapes occurring almost consecutively. Altogether there were six losses in the 35 operations. Among the remaining 574 extractions there were 15 escapes, *ie*, 2.6 per cent. I think this is about the usual percentage obtained by experienced operators. Six of the fifteen accidents occurred in cases where the lens was expelled in its capsule, either squeezed out by spasm of the orbicularis, or extracted thus because of early escape of vitreous or because of the lens becoming depressed (once, in a diseased eye, with pupillary membrane and very shallow anterior chamber). From five other eyes during the year the lens was intentionally expressed in its (more or less opaque) capsule, without any accident with vitreous. From ten eyes opaque capsule was removed immediately after expulsion of the lens, giving two escapes of vitreous, and once opaque posterior capsule was punctured without accident. There remain but seven vitreous losses, distributed among 552 operations where the capsule was left behind. One of these mishaps was in extracting a lens already dislocated into the anterior chamber. Another occurred in a glaucomatous eye. Two losses are noted as being due to a blunt cystotome pulling tough opaque capsule about instead of cutting it. (Our cystotomes become much blunted through constant sterilizing in the flame of a spirit lamp). These explanations are given, not with a view of excusing our faults, but with the object of showing what practical benefit may reasonably be expected from the attempt to maintain intact the supporting diaphragm of capsule and zonule. It is thus evident that the lowest attainable percentage of vitreous accident in ordinary extraction, is very distinctly lower than in the "complete" operation. In comparing the two operations in inexperienced hands, the difference is likely to be greatly accentuated, judging from Captain Oxley's figures and from my own experience. Not only this, I believe that both the frequency and quantity of loss of vitreous are apt to be a little under-estimated in operations where the capsule is removed. Expulsion of vitreous by spasm of the orbicularis may possibly begin or continue or recur after the eyelids have been closed and after the bandage has been applied, without our knowing of the complication. I can recall two cases in my own practice of late incarceration of firm vitreous in the wound, and one example of the distortion of pupil which is produced by large loss of vitreous.

In examining the visual results of the total 22 eyes from which vitreous was lost, it is

* Obviously the question of loss of vitreous depends largely on the behaviour of the patient also. Do the Punjabis exhibit an unusual degree of self control?

noteworthy that three patients were only able to see moving bodies afterwards. Two of these three almost certainly had detachment of the retina,* the eyes had a satisfactory appearance, but were useless. It is a matter of common observation that this result is to be expected, either at the time or later, in a proportion of the cases where any considerable quantity of vitreous is lost†. The absence of any mention of loss of sight from this cause in the Jullundui reports, certainly would appear to weaken the whole of the statistics of results, necessarily based mainly upon hospital assistant's tests and records.

In our Bombay operations there is a definite percentage of poor and moderate results, due to no fault in the operations, but to pre-existing conditions, such as corneal opacity, occluded pupil, glaucoma, or fungus disease‡. It is sometimes very difficult to decide to what extent previous disease of the eye is responsible for a poor result. Under the circumstances anything approaching 99.27 per cent "first class results," as obtained with simple spherical lenses at Jullundui, is absolutely impossible. And classification by visual result alone without qualification becomes meaningless and possibly misleading. The visual acuteness obtained at the C. J. Ophthalmic Hospital from extraction of lens and capsule (either the lens in its capsule or the lens and opaque capsule separately) without loss of vitreous, has never been appreciably better than that of the general average of ordinary extractions, as tested at the time of discharge from hospital, usually nine or ten days after operation. Simple spherical lenses are used, and test-dots corresponding with Snellen's types. The patient's pupils at the time are always more or less dilated from the atropin used in the routine after-treatment. The last fifty cases gave these results—

6	6	6	6
2 cases 20,	5 cases 30,	14 cases 40,	16 cases 60,

12 cases fingers at various distances, one case moving bodies (a glaucomatous eye). The surprisingly low average vision is presumably attributable to astigmatism and dilated pupils. Either the average degree of astigmatism produced by this operation must be greater than in ordinary extraction, thus counterbalancing the benefit of the clear pupil, or the effect of early after-cataract upon visual acuteness must be remarkably slight. It goes without saying that the visual field must be often much blurred after

ordinary extraction, by opaque capsule, cortex, blood-dot and lymph, but this is a matter of quite secondary importance. The superiority of the perfectly clear pupils, as regards visual acuteness, would be doubtless more evident in comparing later results. This is the main justification of the Jullundui practice. So exceptional is it throughout India for patients to return after discharge from hospital, that even in Bombay we have to deal with after-cataract quickly or not at all. Patients whose vision appears to be definitely impaired by after-cataract, apart from purely temporary defects due to blood-clot or cortex, are "needled" ten or eleven days after operation and kept in hospital two or three days longer. When properly safeguarded this appears to be a proceeding quite devoid of risk. A fairly long single cut is made in the opaque membrane by means of a sharp and very narrow old Graefe's knife introduced through the sclerotic close to the cornea. The scleral puncture is made sub-conjunctival by sliding the moveable ocular conjunctiva, caught on the point of the knife.

My small experience of extraction of the lens and capsule supports Major Smith's statement with regard to the absence of ordinary nitis after this operation. But really troublesome nitis, nitis which defies treatment, is due almost exclusively to infection, and in this respect we are possibly better off in the ordinary operation. It is well recognized that many of the bad results from operations for after-cataract have been attributable to infective organisms which gained entrance through vitreous incarcerated in the corneal wound. Does infection never enter the eye in this way after cataract extraction? In the last Jullundui series of cases there were nine suppurations, three of which apparently occurred among the nine cases reported of large loss of vitreous.

In the Bombay hospital both suppurations and severe nitis are extremely rare complications. I formerly reported* 1,172 extractions with only one suppuration, and no nitis or irido-cyclitis "severe enough to have resisted energetic treatment." Since returning from leave I have performed over 800 additional extractions, with the result of no suppuration and only one closed pupil from nitis.

To sum up, not a scrap of evidence has been advanced, or is ever likely to be advanced, sufficient to justify removal of transparent capsule, except under very pressing circumstances. The case as regards the average operator remains precisely as it was heretofore, in spite of Major Smith's excellent work. By ordinary extraction, followed if necessary by needling, quite as good results can be got, with distinctly less risk, and at the cost merely of a little more troublesome and more protracted after-treatment.

* Possibly all three had retinal displacement. Opacity of vitreous very frequently obscures the view of the fundus in these cases.

† We have certainly seen detachment follow operation, though rarely, where no vitreous had been lost, in eyes neither myopic nor obviously unsound previously. We are not prepared, therefore, to assume that small losses of vitreous are invariably harmless.

‡ One has no right to refuse operation where there appears to be a chance of restoring moderate vision, e.g., in cases where projection of light is impaired but not greatly so.

* Practical Details of Cataract Extraction, 2nd Edition, 1903.

REPORT ON THE PREVALENCE OF YAWS IN THE LOWER CHINDWIN DISTRICT, UPPER BURMA

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THE existence of yaws in the district was first recognised by Mr A. H. Nolan, late Civil Surgeon of Monywa, who had his attention previously drawn to cases of the disease in the Pakokku and Shwebo districts in 1899. After his appointment to the Lower Chindwin district, cases which were seen similar to those found in Shwebo and Pakokku districts, led to an enquiry and study of the disorder found prevailing in this district. His observations were embodied in a paper which was read before the Indian Medical Congress in Calcutta in 1894 and published in the *British Medical Journal* of 2nd February 1895.

On my arrival in Monywa in 1901, my attention was drawn to the existence of the disorder and since then my observations have led to the conclusion that "Yaws" described by Manson, Sheube, and other authors is found prevailing in the Lower Chindwin district, the various lesions of the disorder being similar to those described by these authors.

Local names of the disease—The disease is known by different names in the district. In the Kani township it is called *Toung-noo-nah*, i.e., *Toung-hill*, and *noo-nah*—leprosy—referring to the raised excrescences in the disorder. It is also known as *kwe-nah*—a crippling disease about this locality.

In villages bordering on the Shwebo, Sagaing, and Pakokku districts, it is called *Pwe-zone-nah*. A translation of this word gives an illustrative idea of the eruption seen. *Pwe* is a species of mole which throws up little mounds of earth over its burrowing place. This mound is known as "zone" by the Burmans. This nomenclature of the disease was graphically described to me by a learned *phoongyi* in the district and clearly illustrates the form of eruption seen.

History and the distribution of the disease—No definite period of its introduction into this part of Upper Burma can be traced.

In some villages it has been known for generations, while in others, the disorder is of recent origin, having been introduced from some previously affected village. In large villages in Kani township, a tradition prevails that the disorder was first introduced from Siam, trading boats in former days coming up along the Meigun coast to the Chindwin river.

Extent of prevalence—Up to the present time 65 villages in the district have been found affected with the disease. The centre of prevalence is in the Kani township in which 29

The majority of these are riverine villages between which constant communication exists. Inland villages in this township are less affected, and in further inland ones some distance from each other, the disorder prevails only to a slight extent.

Budalin township adjoining Kani has also 29 villages where the disease is found. The majority of these villages are on the Chindwin river in communication with villages in the Kani township. Cases have also been seen in some small villages on the Mu river near the Shwebo border of the district.

In Alon township the disease is found in only 6 villages, in Salingyi township one village is affected, while Pale is entirely free from it.

Character and description of the disease—

The following observations have been made from a study of 431 cases that have been treated in the district from November 1904.

Mode of communication—The disease is a definitely contagious, infectious, and chronic disorder, caused by direct inoculation of the specific virus through a breach of surface of the skin. This condition of broken surface is constantly present in the way of abrasions, wounds, ulcers, or various forms of skin eruptions, in the majority of inhabitants of a village, and the liability to infection and spread of the disease in a locality affected with yaws can be readily understood.

The people themselves understand that the disease can be communicated from one to the other, the initial lesion beginning in an open surface, either by direct contact of the secretions from a yaws fungus, by the contact of clothing or mats in a house infected with the disease, from the dust in a village infested with the virus, and by the communicability of flies and other insects.

Degree of contagion—So far as my observations have tended to show, children are the greatest sufferers, but no age is exempt and both sexes suffer alike. Very young infants appear to be less affected than children over 6 months, and in no case has an infant born of an infected mother been heard of as having been born with the disease. The youngest child found suffering from the disorder in the total number treated was three months old.

According to ages, 113 were between 1 and 5, 106 between 5 and 10, 54 between 10 and 15, 21 between 15 and 20, 43 between 20 and 30, 35 between 30 and 40, and 59 over 40 years.

The disease is undoubtedly a place disorder, but of slow progression. When an inmate of a house is attacked, other cases are certain to follow in the course of time.

The period between the first case in a house has been known to vary in different localities from 2 months to 4 years from the introduction of the disease.

The period of incubation is uncertain. From notes collected in cases where the primary

lesion appeared in recent ulcers or wounds, a period of 3 weeks to 2 months was said to have elapsed before the primary sore appeared. In 6 cases where inoculation unfortunately occurred in the sites of vaccination erosions, 6 weeks to 2 months elapsed from the date of operation and healing of the vaccine ulcers before the appearance of the primary fibrocystic sore. It is noteworthy in this connection to remark, that in each of the 6 cases successful vaccine vesicles appeared in two of the sites of operation, the single site of failure in each case resulting later in a primary fibrocystic lesion, and each subject developed a moderately severe secondary eruption of yaws. This observation is interesting in view of one author's conclusion—Keelam—who states that vaccinated subjects develop only a mild form of the disease and that vaccination exercises a favourable influence on the course of the disorder.

Symptoms and progress of the disease—In a few instances only in adults were symptoms experienced of a prodromal nature prior to the appearance of the initial lesion. These were mild, consisting in slight feverishness, loss of appetite, and rheumatic pains about the joints and muscles. The primary lesion if occurring in an apparently sound site or a slight breach of surface, appears as a hard papule itchy in character, which gradually enlarges and breaks down having on its summit a depressed yellow spot of inspissated secretion. This tends to spread until the whole papule is absorbed by ulceration. This ulcer heals in the course of a few days and leaves a slight scar which is noticeable for some months later. Unless occurring on small surfaces of broken skin, the initial lesion is difficult to recognize. Some patients described the onset of the disorder as an aggravation of irritation of existing ulcers where inoculation was presumed to have occurred.

In many cases no history of a primary lesion could be obtained before the appearance of a general eruption. In a large number of the cases treated, however, it was observed that a definite primary sore did occur with a period of quiescence before a general eruption developed.

The most usual site for the primary sore in adults is the lower extremity which is obviously more open to infection than other parts of the body.

In children it has been observed more commonly on the hands and face, and in infants who contract the disorder from an infected mother, a depressed condylomatous looking eruption about the corner of the mouth has been noticed before a general invasion occurs. The period of the quiescence of the disorder varies from 2 weeks to 2 months before the general eruption appears, and definite constitutional symptoms are described by adults, by some as mild, by others as severe. Fever more or less marked is prominent, associated with lassitude and loss of appetite. Pains about the joints and

loins are invariably present, an itchy description of the skin is also described before the appearance of the eruption. The skin at this stage becomes harsh and dry with raised patches of furfuraceous desquamation, either in small areas or by coalescence involving large areas. In these patches the granulomata appear as minute papules which sprout out and coalesce, the summit of each papule having a yellow point. With the growth of each papule and a coalition of several, the yaws is formed. A fully developed individual tumour presents the following characteristics. It is conical in shape, raised about $\frac{1}{2}$ to $\frac{3}{4}$ of an inch from the surface of the skin. The base is round or oval with a diameter from $\frac{1}{2}$ to $\frac{3}{4}$ inches. The summit is topped with a yellow inspissated moist crust which is difficult to wipe off. If scraped, bleeding occurs, and on wiping the blood pink papules are apparent with interspaces which dip down between them. Rapid exudation of cheesy material recurs and the yellow moist crust again forms, which later on becomes brown.

Several of the tumours may coalesce and form irregularly raised patches. When exposed to pressure as in the arm-pit and in the inner part of the thighs, and near mucous surfaces about the corners of the mouth, nose, near the anus and about the vulva, the eruption appears as flattened moist yellow condylomata. When situated in the hands and feet, they resemble hard fissured growths exuding a sero-purulent material which does not crust readily owing to the thick epidermis which prevents the entire outgrowth of the papules. As a rule little pain is associated with the growth except on the hands and feet, but itching is usually marked.

The crop of the tubercles varies from a few in number to a general invasion of the whole body, being most numerous on the face, back and chest. Many portions and mucous surfaces are very rarely affected, but they are frequently found at the junction of mucous surfaces with the skin, such as the prepuce, vulva, near the anus, the nose and the angles of the mouth, where the growth resembles syphilitic condylomata. In some cases in children, only this latter form of the eruption existed near mucous surfaces, the typical granulomatous masses being entirely absent from the body.

Other varieties of the secondary eruption were also seen. In some the growths were confined to the palms of the hands and soles of the feet where an ulcerative fissured condition of the tumours appear, through these cracks a sero-purulent discharge exudes. In these sites before the thick epidermis is destroyed, the yaws is extremely painful, relief being experienced when the fungoid appears through the epidermis.

Another variety seen was a small papular growth, each papule being about the size of a pea without any inflammatory areola. The summit of each papule was capped with a dry brown scab. This variety is a modified form of

the typical yaws. An eruption somewhat resembling chicken-pox with raised and centrally depressed blisters, without any surrounding inflammation was also classed by the natives as a form of the eruption sometimes seen in cases of yaws in children only. A confluence of several granulomata which retards the growth of each individual tumour, presents an irregularly circular growth encircled with a dry brown scab, and on this sprouting and falling off the eruption resembles an aggravated ringworm.

The duration of the secondary eruption varies considerably in cases. In some with early treatment the tumours, from three weeks to three months, shrink in size, the crusts become thinner and dry up until they fall off and disclose a whitish macula which rapidly becomes black and persists for a considerable time. No cicatrix or puckering of the skin results, and when the macule fades away there is nothing to indicate the former site of the tumour. A single crop of the granulomata will, in many cases, terminate the secondary manifestations especially in young subjects. In others, particularly in adults, successive crops of the eruption occur with a period of quiescence between each appearance of the tumours, each attack being ushered in with slight constitutional disturbances. As many as three crops have been known to occur in cases and to have extended over a period of two years from the commencement of the disorder. On the disappearance of the secondary eruption, patients regain their usual health and remain immune from any other manifestation of the disorder for several years.

I now come to an important point in connection with the continuance of the disease and its manifestation in later life, where lesions occur which are invariably attributed by the sufferers to an antecedent attack of yaws some years previously, and which I consider are undoubtedly tertiary manifestations of the disease.

These manifestations have been considered by various writers on the subject, to be either lesions of continuous duration of the secondary eruption, or attributable to other constitutional disorders such as scrofula and syphilis.

Particular attention was devoted to investigations on these later manifestations and in each case classed in this category, a history of entire immunity from the disease, of periods varying from 8 years to 53 years, was gathered. Adult patients invariably attributed the lesions they suffered from to an antecedent attack of yaws in childhood and in cases of younger people, parents gave the same history. The prolonged period of entire freedom from any manifestations of the disease eliminates the first contention of the possibility of the later lesion being a continuation of the secondary eruption. A second suggestion that the lesions are possibly due to some other coincident constitutional ailment requires fuller consideration. Syphilis and scrofula are not disorders commonly seen in rural

areas in Upper Burma. The former disease particularly in distant villages in the district, is practically unknown to the people, although the *sayaks* are aware of its nature. All the cases with these manifestations gave a history of previous yaws. The sites of the primary sore were invariably in parts where ordinarily a primary syphilitic lesion is not found. Glandular enlargements were not usually associated with the subsequent secondary eruption.

Furthermore, if these manifestations were syphilitic, why should they be confined only to localities where yaws prevailed and among people who previously suffered from yaws, and not be seen in other villages free from this disorder? Cases are commonly seen in yaws-affected villages and not elsewhere.

The same argument about the prevalence of these tertiary lesions in defined localities and among certain classes of people, disposes of the contention of the probability of a general tubercular diathesis in these communities.

The varieties of these lesions investigated are described below in the order of frequency in which they were observed.

(1) *Chronic thickening and fissuring of the skin on the palmar surface of the hands and soles of the feet*—The fissures in cases extended only partially through the skin, were painless and dry, and caused no further discomfort than a feeling of uncomfortable roughness over the affected parts.

In others, the cracks extended down to the muscular layer, exuded a sero-purulent discharge and were extremely tender on pressure. The sensibility of the surface of these parts is greatly diminished.

(2) *Chronic indolent ulceration of various parts of the body*—These ulcers varied in size from small ones to those of the size of a hand or larger. When not associated with periostitis, the ulcers are painless and heal slowly. When multiple, the general health is greatly impaired, anæmia and emaciation set in, and chronic invalidism is caused. Ankylosis caused by cicatricial contraction of extensive ulceration on the flexor aspect of joints has been observed in several cases.

(3) *Periostitis and osteitis are other sequelæ frequently seen*—The shaft of the tibia, radius, and ulna are the usual sites of these complications. A swelling, resembling a syphilitic node, appears over the shaft of the bones involving all the tissues covering it. This is at first painless. As the growth enlarges, the bones become thickened and the surface of the skin is glazed and purplish, and pain on pressure is present. The skin in time breaks down and troublesome ulceration results. When joints are affected, usually the knee, finger, and elbow-joints, with this variety of the disease, ankylosis results.

Necrosis of the nasal and palate bones resembling the syphilitic affection of this nature have been seen in several cases.

(4) Cartilaginous tumours on the elbow and knee-joints have been observed in nine cases. These tumours were painless, and caused no discomfort except for their size and position. They were ascribed by the sufferers to an antecedent attack of yaws.

Treatment—The indigenous method of treatment relied on by *sayahs* is the administration of mercury in all cases as soon as the secondary eruption appears. The crude metal is freed as far as possible from lead, which is usually present in the mercury used by *sayahs*, by trituration with rice powder or saffron. The drug is mixed with alum, saltpetre, sulphate of copper and ammonium chloride, and administered in the form of powders, one dose being given daily for seven days.

Other admixtures with cloves, black pepper, iron dust, betel leaves, oil and jaggery are also frequently employed.

This crude treatment invariably results in salivation and soreness of the gums which are appreciated by the *sayahs* as beneficial in the disorder showing that the system is saturated with mercury. During the course of treatment a rice and vegetable diet is advised and bathing avoided. On the eighth day a brisk purgative is administered and daily bathing for a further period of seven days carried out. *Sayahs* claim that many cases completely recover with the one course of mercury. In other cases a second and third course are necessary at intervals of a month between each period.

Fumigation and inhalation of mercury are also employed occasionally. Red arsenic has also been known to be used for inhalation with questionable benefit. Local applications to the granulomata are not used. Ulcers resulting, however, are dressed with a paste made up with sulphate of copper and lemon root.

The treatment employed in the cases under report was the administration of liquor hydragryi perchloridi and potassium iodide for the secondary eruptions. Local washing of the yaws with a soda lotion and the application of sulphate of copper to each granuloma was also carried out. In old standing cases of the tertiary variety, marked benefit was immediately noticed after the administration of large doses of iodide of potassium, as much as 75 grains a day being given in some cases. Bicarbonate of soda was also employed in combination with the iodide in these latter cases. Mercury appears to be the essential treatment in the secondary stage. Experiments were tried in this stage in some cases to omit mercury and administer bicarbonate of soda and iodide of potassium. Treatment was prolonged in each case. The combination of mercury with iodide of potash was found the speediest remedy in this stage. In the tertiary variety, however, early benefit was observed from the iodide of potassium alone or mixed with soda and without any mercury.

Since November 1904, 431 cases have received treatment.

Two hundred and seventy of these were in the secondary and 161 in the tertiary stage of the disorder, 213 of the former and 132 of the latter have been reported as cured or relieved, and 86 are shown as still under treatment. In many instances relapses occurred in the secondary stage and a second course of treatment was required.

THE TREATMENT OF CHRONICALLY ENLARGED SPLEEN CASES

By V S ARUNACHALAN PILLAI

History—Dugaijaputam or Aimegha, a small village in the Nellore district, is historically important, being the first British settlement in India. The remnant of an old fort is still a curiosity.

The original city, which was a flourishing one, was swept away by the tides years ago, and a very small village now marks its site.

It is traversed by the Buckingham Canal which was the important means of communication between Madras and Bezwada till the introduction of the East Coast Railway. The village was healthy inasmuch as the troops, both European and native, halted here for supply of provisions and water in their march to and fro.

In 1895 and 1896, a severe form of malarial epidemic raged here and in other villages on the border of the canal and on the coast from Madras northwards, carrying away nearly half of the population. It is simply striking to hear the accounts of sufferings endured during the period. It is said that some who got the attack were turned out to be black and expired within 24 or 32 hours. An example of this change of colour is still to be found in this village, who recovered from the attack. The infection gradually spread to the adjacent villages. The mortality was so great and alarming that it was attracted by the attention of the authorities who speedily undertook to ameliorate the condition. Dr. King, Sanitary Commissioner for Madras, visited the locality and made a searching investigation by examining water-supply and other sources in the villages within a radius of six or seven miles. An elaborate account of the causation may be found in his report. As a result, a dispensary was opened here in August 1903.

The fever gradually subsided year after year, increasing during the hot season, and decreasing during the cold season. The place since 1895 was considered to be deadly malarious and a terror to most of the recruiting officers and to the general public.

When I took charge of the dispensary last September I noticed a number of enlarged spleen cases loitering about, apparently having no idea of undergoing any treatment, as everything

proved to be useless. With great difficulty they were brought under the new treatment with encouraging result.

The drug used was none other than biniodide of mercury. Its external use as an ointment is long and tedious, and cannot be used in case of out-patients who have to labour for their bread after attending the dispensary. I therefore gave them the drug internally in a soluble form, as it struck me that it might act in this way as a glandular absorbent. The result was satisfactory. In some the cure was speedy, in others it was slow, but encouraging every patient to continue it as distressing symptoms, if any, are speedily relieved. On the other hand, in a few its action was so slow that appreciable reduction was not noticed after a month's treatment, but in no case the patient returned without any improvement or in a worse condition.

The following notes on 6 cases will be of some interest—

Case 1—Seethamma, Hindu female, aged 25. Admitted on 25th October 1904.

Condition on admission—Spleen enlarged up to 2 inches right to median line at the level of navel and 2 inches below it. It is of about five years' duration, very hard to touch and gave the abdomen the appearance of ascites. In other respects she was healthy and no fever present.

She was given a saline purge, and from the next day she was put under the treatment of the solution.

On 20th November 1904 the gland was soft, but no reduction in size was appreciable. On 26th November 1904 on examination the gland was found to have assumed a vertical position extending from the costal arch to crest of ilium. The abdominal enlargement subsided, but her gums swollen and painful. The solution was stopped.

After two days the woman got alarmed at her gum affection and stopped from attending the dispensary in spite of repeated requests.

She was specially brought on the 22nd January 1905, and on examination no sign of any splenic enlargement noticed. She looked perfectly healthy and vigorous.

Case 2—Venkataraja, H M C, aged 8. Admitted 9th November 1904. Spleen up to navel and below on a level with the crest of ilium, six years' duration. Complained of distressing pain in the splenic region on walking a little distance, used to get fever every third day.

He was given a dose of santonine and a purge next day. The solution from the third day of admission. On 24th November 1904 the spleen was found to have assumed a vertical position from costal arch downwards. The pain and distress on walking disappeared, and he could walk miles without any discomfort. He had been also treated for fever which also stopped. Being relieved of urgent symptoms, the boy became irregular in attending the dispensary, and a few days after stopped away. On 10th January 1905 he was specially sent for, and on examination the spleen was found to have been half reduced and no discomfort felt.

Case 3—Chensu, H F C, aged 7. Admitted 29th November 1904. The girl had a large spleen and was treated by my predecessor with Twining's spleen mixture. On my examination the spleen was found to be a soft mass below the costal arch about three fingers' breadth. She was given the solution for a week, and on 5th December 1904 no trace of enlargement felt.

Case 4—Paradesi, H M C, aged 8. Admitted 1st December 1904. The spleen enlarged up to navel and

2 inches below it. It was of more than two years' duration. Twining's spleen mixture was of no effect. Had fever of quartan type, but milder in form. He was given the solution for more than a month, and no appreciable reduction noticed, though his general condition is much improved.

Case 5—Gurunamma, H F C, aged 8. Admitted 1st November 1904. Spleen of about six years' duration enlarged up to 2 inches right to mid line and below as far as crest of ilium level. Hard to feel, abdomen enlarged, cachectic with yellowish conjunctivæ. She was regular in attendance, and was taking the solution from the beginning. On 24th November 1904 spleen was about three fingers' breadth from costal arch and vertical in position. Conjunctivæ clear, abdomen of natural size.

On 5th December 1904 spleen about 2 inches square below costal arch and soft. No gum symptoms presented.

On 3rd February 1905 spleen 1 inch square, soft and close to spine. She looked much better.

Case 6—Adiammah, H F, aged 18. Admitted 3rd November 1904. The girl is of stunted growth and not yet attained maturity. Spleen 2 inches right to mid line and 3 inches below navel, hard, abdomen considerably enlarged. Appetite entirely lost. Food reduced in quantity. She could not take a deep breath, and the abdominal muscles are hardly brought to play on deep expiration. Face cachectic, feels pain and discomfort on ordinary movements. The solution was pushed regularly, and on 12th November 1904 her gums affected somewhat severely. The solution was stopped and iron with chlorate of potash and Ammon chloride, with occasional dose of Mag sulphas, was given for four days.

On 16th November 1904 all gum symptoms disappeared and the solution resumed.

On 23rd November 1904 spleen was found to be much reduced, three fingers' breadth from costal arch and 2 inches below it. The reduction is uniform, the abdomen was normal in size, the muscles play well in respiration, can take deep breath and feels easier at work. Spleen is soft and flat.

On 25th January 1905 spleen is of about 2 inches square below costal arch close to spine. She is practically all right and attending to her work. Gums were occasionally affected, but on slight indication the solution was stopped and iron mixture substituted for a day or two. From the 28th January she stopped attending the dispensary as she did not feel any discomfort. She was sent for and examined on 8th February 1905. Spleen was 1 inch square and soft.

Preparation of the solution—Rub 6 grs of perchloride of mercury with 10 grs of iodide of potassium in a clean glass mortar with a dram or two of distilled water. By interaction red iodide of mercury is precipitated, which is then dissolved by the addition of sufficient quantity of iodide of potassium, a little by little at a time till the fluid in the mortar is quite clear, then add 60 oz of distilled water or good water, and keep in a stoppered bottle.

Dose—One ounce three times a day for an adult, and to children according to their ages.

Strength— $\frac{1}{10}$ gr in an ounce of solution.

Caution—Quinine is instantly precipitated if mixed with the solution. If quinine is to be given, which will be invariably the case, it may be given before or after meals, so that there should be an interval for absorption of both the drugs.

Remarks—(1) It is to be noted that out of 15 cases only one case showed no appreciable reduction, but the boy left the village for a change to another and discontinued treatment for a long time.

(2) Cases that had gum affections show improvement soon and only in cases in which the action is slow, improvement is noticed after the affection of the gums, i.e. the salt requires in some cases to be pushed till its physiological action is produced.

(3) There were only two bad cases who came under treatment, and both stopped away when they were able to do their work without any discomfort

(4) In the instructive article by Major C Donovan in the September 1904 issue of the *Indian Medical Gazette* it is said that "out of 31 cases treated as in-patients in the Medical ward, 13 died, 4 removed moribund and 13 discharged otherwise at their own request, the condition being worse than at admission and one remaining" Under such advantageous circumstances, if the salt is given a fair trial by better hands with microscopical investigations and under their direct observations, a better result than what was reported might, I believe, be expected

A Mirror of Hospital Practice

A CASE OF TOTAL EXTIRPATION OF THE PROSTATE BY FREYER'S SUPRAPUBIC METHOD

By W SELBY, D.S.O., I.R.C.S.

CAPT., I.M.S.,

Civil Surgeon, Sitapur, Oudh

A PARSI of about 60 years, a very thin man, had retention of urine for three days before admission to the Sitapur District Hospital. The retention was found to be due to enlargement of the prostate which, per rectum, was easily examined bimanually and found to be soft, freely moveable and symmetrically enlarged. The patient passed no urine voluntarily for 12 days after admission.

His urine was acid, clear and contained no albumen.

On 13th November the bladder was opened above the pubes in the usual way. The inserted finger found the prostate projecting into the bladder.

A snip was made in the mucous membrane over the right lateral mass with blunt pointed scissors and then with the left forefinger in the rectum to assist the gland was enucleated by the right forefinger, separating it systematically from its attachments. It was thus delivered in one piece into the bladder whence it was easily withdrawn.

This part of the operation was done without difficulty, but with a considerable expenditure of physical energy.

Hæmorrhage was easily controlled by irrigation with hot water.

As I had no large drainage tube I had to use two small ones and was unable to suture the hole in the bladder.

A large drainage tube about $\frac{5}{8}$ th inch in diameter round which the bladder can be tightly sutured is essential to the rapid healing of the wound. The prostate when removed weighed $1\frac{1}{2}$ oz. In the centre of the specimen a small mass projects into the urethra which it must have completely blocked when pressed by urine behind. Recovery was retarded by an attack of hypostatic congestion of the lungs which began on the

fourth day and, when that was recovered from, an obstinate attack of dysentery which only yielded to treatment on 28th November.

The treating of the wound was retarded by these general diseases and by the difficulty in retaining the drainage tubes and the size of the wound in the bladder.

He began to pass urine by the urethra on 29th November and left hospital on 9th December with the suprapubic wound still open but rapidly closing.

He was then passing urine freely per urethram when he went to stool.

I send this case for publication as I see the operation has been discussed in your correspondence columns and I think it is one which can easily be done in district hospitals.

I am indebted to Senior Grade Assistant Surgeon Manmohan Das for his assistance at the operation and in the after-treatment of the case.

P. S.—The patient was seen by me on 5th January 1906. The wound was then soundly healed and had been healed for a fortnight past. He had good control over his urine, which he passed, before me, in full stream. He sometimes passed urine once or twice at night, or was able to hold it all night.

A CASE OF INTESTINAL OBSTRUCTION DUE TO A STONE OPERATION RECOVERY

By R. J. MARKS,

MAJOR, I.M.S.,

Civil Surgeon, Saharanpur

J. O. G. —, European, aged 52, a station master of the N.-W. Railway, was seen by me on the 20th October and was found to be suffering from intestinal obstruction.

He was admitted into hospital on the 21st for operation. Permission to operate was not given until the 23rd. The patient was a fat stout man.

On 23rd October, the abdomen having been carefully shaved and washed and all antiseptic precautions taken, the patient was placed under chloroform and an incision made in the middle of the abdomen, 6 inches long, the incision extending 2 inches above the umbilicus and 4 inches below.

The intestines were so tense with flatus that they at once came out of the wound. The small intestine was very inflamed. A stream of warm sterilised water was allowed to play over the intestines all the time they were exposed.

The cæcum was explored and the lower end of the small intestine.

The lower part of the small intestine for about 5 inches before joining the cæcum was very thickened, and at the lower part of this thickening a large stone was found blocking the lumen of the tube.

A longitudinal incision was made over the stone, the stone removed, and the intestines closed by Lembert's sutures. The intestines were returned with difficulty, no toilet of the peritoneum done, and the wound drawn together by sutures embracing the whole thickness of the abdominal wall, both peritoneum and skin. The wound was with difficulty closed on account of the tenseness of the intestines. The patient suffered much from hiccough for four days after the operation. On the fifth day he passed two good motions, and from then onward has made an uninterrupted recovery.

Remarks—This is an interesting case. From his history it is stated that he had an attack of severe hepatic colic two years ago.

The medical man who saw him thought he had passed a gall-stone, and he never found the stone in his feces.

This stone seems to have lodged in the lower end of the small intestine and there caused thickening of the gut.

The stone may also have increased in size by accretion, until with the thickening of the intestine the lumen of the tube was blocked. The stone was $1\frac{1}{4}$ inches long, $3\frac{1}{4}$ inches in circumference and 1 inch in diameter. My thanks are due to Assistant-Surgeon Chanon Singh, who ably helped me in the operation.

CASE OF FRACTURED PELVIS

BY F. W. SUMNER,

CAPTAIN, I M S.

(A Personal Note.)

On March 25th, at Banda, whilst riding a native horse at the walk, it suddenly reared, overbalanced and we both came to the ground, I on my back and the full weight of the horse through his right shoulder on my pelvis rather more towards the right side than the left.

Pain at the bottom of my back was almost unbearable, and I got the natives, who were accompanying me, to gently roll me on to my right side, but a very slight movement resulted in a crunch of bone which could be heard and a feeling as if my pelvis were coming apart and were only being held together by soft structures put on the stretch. I therefore had myself gently placed again on my back, and this position I remained in for the following eight weeks.

There was blood at the meatus urinarius, medical assistance having been wired for from Kohat and having arrived, a catheter was passed into the bladder under chloroform and tried in—a preliminary attempt without chloroform having been unsuccessful.

Fortunately, immediately before the accident I had passed water, and though there was great

desire to micturate after the accident, I refrained until the urine could be drawn off by catheter some six hours later.

I was given a hypodermic of morphia and carried into Kohat (a distance of 40 miles) on a chairpoy and on arrival was again put under chloroform. No crepitus could be demonstrated, but all around the perineum, scrotum, iliac fossæ, and hips was considerable ecchymosis.

A supporting apparatus was applied round the pelvis.

Eight weeks on my back on a fracture bed followed. The lower limbs were (with assistance) daily moved by me, and the buttocks, iliac fossæ and lower limbs were twice daily massaged.

The ecchymosis in iliac fossæ—especially on the right side—lasted six weeks.

The urethra healed kindly and the catheter was removed after a few days.

Eight weeks having elapsed, examination shewed four fractures as demonstrated by callus in the following position—both pubic rami on the left side, just behind the tuber ischium on the right side, posterior superior iliac spine on the right side—probably a communicating line of fracture joined the two last-mentioned positions.

The right portion of the pelvis was apparently slightly displaced backwards.

I could with a little discomfort lie on my left side but could not do so on my right side on account of the pain and a feeling of weakness it produced in my pelvis even now (three and-a-half months) although I can comfortably lie on my left side in bed, I cannot do so on my right with any degree of comfort.

I now began to get about on crutches walking alternately on each foot from the first. After a fortnight I could stand without discomfort on my left leg, but was unable to do so on my right on account, I presume, of the body weight being transmitted through the four breaks and the muscles attached to that half of the pelvis being more damaged.

Daily massage and leg exercises with a Whitley's exerciser was the line of treatment now adopted.

By June 25th (three months) I was able to walk without the help of crutches or sticks and without lameness.

On June 30th, I commenced riding again without discomfort or ill-effects.

On July 5th, I was able to indulge in a dance. I attribute this rapid recovery of locomotory power to the fact that daily voluntary movement of the muscles of the thigh and hip and especially the psoas and iliacus muscles commenced from the first prevented any large degree of wasting and prevented adhesions, and also to the excellent care I received from Lieutenant-Colonel Rogers, I M S., and Captain Tate, I M S.

A NOTE ON ALYPIN

By F P MAYNARD, M B, F R C S

MAJOR, I M S,

Calcutta

ALYPIN is a white crystalline powder introduced as a local anæsthetic by the Bayer Co. Mr. Sydney Stephenson had an interesting article upon its use in the October number of *The Ophthalmoscope* which led me to try it. It has proved so satisfactory that I am using it in almost all operation cases for which cocaine has hitherto been used and think that it is worth bringing to the notice of your readers.

Alypin is very soluble in water and its solutions can be boiled (like those of eucain) for a few minutes without being spoiled. It does not affect the pupil, the tension or the accommodation and it does not soften the corneal epithelium. The smarting it produces is no more than that from cocaine. Anæsthesia comes on in about two minutes after one instillation of a 2 per cent solution and lasts quite twenty minutes. It is said to be less poisonous and in over a hundred cases (mainly cataract extractions) I have observed no sign of poisoning. But in the January 1906 number of the journal above quoted a case of poisoning from its local use is recorded—short convulsions followed by brief unconsciousness and rapid recovery.

Alypin does not appear to be an analgesic any more than cocaine is, so its introduction still leaves chlorin our best analgesic. The anæsthesia it produces in the cornea and iris appear to me more complete than in the conjunctiva.

The Bayer Co. recommend that water should be sterilised by boiling, then the alypin added and boiling continued for two minutes more.

Alypin is cheaper per gramine than cocaine and one instillation of a 2 per cent solution suffices instead of three of a 4 per cent solution of cocaine. The cost of using it is therefore materially less than cocaine.

THE ANOINTING OF THE BLADDER IN THE AFTER-TREATMENT OF OPERATIONS FOR VESICAL CALCULI

By J E BOCARRO, ASST SURGN,

Civil Surgn, Shikarpur, Sind

INCREASING experience and the number of observations on any special mode of treatment enable one generally to gain a certain amount of confidence in following a definite line of treatment for any particular complaint. Such has been the result with reference to myself as regards the method now invariably adopted by me in the after-treatment of cases of vesical calculi operated upon either by cutting or crushing. I refer to the practice of anointing the bladder with oil immediately on completion

of the operation. Recourse to this practice is found to be extremely beneficial, in that it undoubtedly, in most cases, obviates the dangers of cystitis and, at any rate, conduces towards relieving the patient of a good deal of the pain and irritation caused by the passage of instruments into the urethral canal. The knowledge of the soothing effects of oils on mucous membranes generally, naturally suggested the practice and the results have been so satisfactory as to have encouraged me in the adoption of the plan in all cases and in all patients without exception. The introduction of the oil is effected by means of an ordinary glass syringe, or a brass ear-syringe, and it is injected through the cannula, which in the case of lithotomy operations is passed through the perineal wound into the bladder. The best bazar "sweet oil," slightly carbolized, answers the purpose well enough, and is perhaps to be preferred to castor oil, being almost equally as bland but less viscous than the latter oil. The quantity used is from 1 to 2 drams in the case of children, and from 3 to 6 drams in adults repeated if need be, within 12, or again, within 24 hours of the operation. But, as a rule, one injection, and sometimes two are enough to assuage pain and allay the irritability of the bladder, which not unfrequently in itself leads to cystitis and subsequently to peritoneal complications. On the score that it is always better and easier to prevent complications than to cure them, the suggestion here made may be of some value, although in venturing to draw the attention of the medical profession to this point in the post-operative treatment of vesical calculi, it must be admitted that the recommendation is based entirely on the favourable character of the statistical results following stone-operations undertaken exclusively within my own practice, and may, therefore, be taken for what it is worth.



Indian Medical Gazette.

FEBRUARY, 1906

MODERN FOOD REFORMERS

THERE is no subject of a medical nature which is more occupying public attention at present than that of dietetics, and gentlemen of a middle age are nowadays frequently laying down the law as to what suits them and, according to them, should suit others, with a dogmatism as great as that of an eighteenth century theologian. There is an old saying that a man is either a fool or a physician at forty, and there can be little doubt but that most men by the time they have reached the age of forty have learnt what to avoid and what suits them, or if they have not, they soon begin to suffer for their foolishness.

In an interesting review of the subject in the December number of the *Practitioner*, Dr. Eve clearly and fairly discusses the matter, and it may be worth while to follow him.

The ideal, he says, is the elimination from the diet of any food containing uric acid or any of its congeners, or in more modern phraseology a "purin-free diet" is the desideratum—the purin group being those chemical bodies which contain the radical C_5N_4 . Uric acid is the most important purin, but others are xanthin, hypoxanthin, thein, caffeine and theobromin, to all of which are ascribed slow toxic properties.

What then is a "purin-free diet"? The flesh of bird, beast and fish must be excluded. Milk and milk products as cheese and butter are the only foods of animal origin permitted. Eggs are doubtful, they contain no purins, but in some individuals they increase the excretion of uric acid in the urine.

White bread and most vegetables are purin-free, but as regards vegetable foods we must unfortunately exclude some of the best, viz., peas, beans, asparagus, onions, mushrooms, tea, coffee, chocolate and even porridge.

Clearly a purin-free diet is practically impossible, and unless in the solitude of one's own house it is difficult for any one to follow or enforce. Such a diet is even more restricted than the so-called "vegetarian" dietary, and the exclusion of peas, beans, and in India the pulses (*dals*) is a serious matter.

The great apostle and preacher of an uric acid free diet is Dr. A. Haig, whose big book on

Uric Acid is known to many of our readers. Haig's list of uric acid diseases is a formidable one and includes migraine, gout, epilepsy, asthma and bronchitis, Bright's disease, rheumatism, diabetes and arterio-sclerosis, &c. The enthusiasm of some of Dr. Haig's patients or disciples have done much for the spread of his views, as for example the writer of those interesting books "*Pot Pourri from a Surrey Garden*"

In cases of migraine, gouty eczema, and asthma there can be no doubt of the very great value of Dr. Haig's restricted dietary.

Dr. Eve says that the following sentence is not only a fact but provides the fundamental justification for a purin-free diet —

"In an ordinary person, on an ordinary mixed diet, of the uric acid and other purins which appear in the urine, only about half are due to the necessary wear and tear of the body, the other half are simply due to purins needlessly imported in the food. The former moiety is of course inevitable, but the latter moiety is avoided in a purin free diet, and the body is thereby saved the needless labour of transforming and excreting all these unnecessary purins. And in persons who eat freely of meat and soups, this exogenous moiety may easily be much more than half the total purins excreted. The urinary purins may be regarded as the ashes of the combustion of proteid food, so that, to use a homely analogy, in our ordinary meaty diet, we are using coal which contains double the necessary quantity of ash, whereby the fire burns less brightly."

White meats are as bad (*qua* uric acid or purins,) as dark meats, fish contains less, but is far from being purin-free. Soups and meat extracts contain little except purins, and must be entirely avoided. Soups can, however, be made purin-free out of milk. Beer and stout one is surprised to learn contain but little purins, and there are none in wine and spirits. In many persons, however, alcohol, even in small doses, leads to a large increase of uric acid in the urine.

Another worker in this field is Dr. Walker Hall, whose book on *Purin Bodies* is well known. He does not agree with Haig on many points, and controverts especially Haig's fundamental statement that uric acid accumulates in the blood or tissues (except in gout, &c.), and hence it is impossible to wash it out with salicylates or other drugs.

Walker Hall also points out (*contra* Haig) that flesh foods do not contain uric acid as such, but as hypoxanthin and other purins. He thinks that the clinical ill-effects are due rather to the nature of the "uric acid combinations" in the blood than to the quantity of

uric acid, *ie*, as to whether these combinations are irritating or the reverse. He denies that we have any drug which can be given in sufficient quantity to affect the circulation of urates in the tissues, except indirectly by stimulation of the liver or bowels.

Finally, Walker Hall considers that in health uric acid is a necessary stage in nuclein metabolism, that in disease uric acid is merely a symptom of conditions which hinder its solubility, and that uric acid is not the cause of the lesions. Hence that it is absurd to give drugs which increase the solubility of uric acid in a test tube. Pfeiffer, however, finds that uric acid in salt solution injected under the skin of a gouty patient always produced an attack of gout, unless 5 to 8 cc of hydrochloric acid had previously been administered. And Falkenstein finds that gout and dyspepsia were much benefited by 40—60 drops of pure hydrochloric acid taken daily in large quantities of effervescent water.

Dr. Eve then remarks that there is considerable evidence to show that "purin bodies do act as tissue poisons, particularly in susceptible individuals," and he then proceeds to glance at the views of other modern food reformers, such as Fletcher, a confirmed dyspeptic, over 50 years, who regained health and strength by prolonged mastication, and on half the quantity of food ordinarily consumed.

Next there are the recent astonishing experiments of Professor Chittenden, who investigated the question of the minimal amount of nitrogenous food necessary to maintain health and strength in five professional men, eight university athletes, and thirteen soldiers. The experiments had the great merit of long duration, none of them being dieted for less than four months, while some experiments lasted a year.

His results are set forth in a most convincing and dramatic manner in his book, which proves that for at least this length of time, these types of men can subsist on half the 120 grams of proteid food which was formerly considered necessary to support life, and this again is of course very much less than the amount ordinarily consumed. On this diet, which was limited only in quantity, and not in quality, his subjects gained in strength and health, and did their muscular and mental work better.

What now is the feature common to all these three peculiar dietaries, and shared to some degree by vegetarianism? Haig allows only purin-free diet, which is unattractive and

mainly vegetable. Fletcher and Someren insist on a prohibitive duration of mastication. Chittenden simply limits the quantity of nitrogenous food to its lowest possible limit in healthy individuals. All three achieve wonderful results both in health and disease. Now, of necessity, all food reformers must startle the imagination of their disciples, but what trick is the conjurer really concealing when he fires the uric-acid pistol, or when he insists on inordinate mastication, or when only bulky vegetarian food is permitted? Surely a chief result of all these systems is that the quantity of nitrogenous food is diminished by an oblique method, which is most useful in dealing with many patients.

Dr. Eve does not mean to assert that a purin-free diet has no other virtue beyond automatically limiting the quantity of nitrogenous food consumed. In the following diseases it is probable that mere limitation of quantity would not be sufficient, *eg*, gout, migraine, genuine chronic rheumatism, lithæmia, inadequacy of liver and kidneys, arterio-sclerosis and forms of neurasthenia. To grant so much, however, as Dr. Eve does, is to give the case to the food reformers, and there seems to us to be a good case established for severe restriction of the diet in persons suffering from the above diseases. It is difficult to believe that ordinary human nature will submit to such restricted diet merely to prevent the ills still in the future, and for ordinary persons, we counsel moderation, moderation or temperance in food is as vitally important to the race and to the individual as is temperance in drink. In judging of the results of dietary systems on individuals we must never forget the possible though subconscious effects on metabolism of enthusiasm, for, as in many other cases, believers benefit more than sceptics.

DE SENECTUTE

FROM time immemorial writers have loved to philosophise on old age, and as time goes on the subject seems as fascinating as ever. No one particularly welcomes old age, yet many write and more read about it. It is a subject which must interest one whether we like it or not.

Within the last few months three well known medical writers have discussed the subject. Metchnikoff, it will be remembered, stated that longevity is in the inverse ratio to the length of the large intestine. Birds for instance have next to no large intestine, and though such small animals they are supposed to live 50 or

even 80 years. Old age then, according to the Russian philosopher, is the result of a slow intoxication, but why the intestinal toxins acquire such potency only after five-sixths of a man's life have passed is hard to say, and though the prevention of intestinal putrefaction is doubtless an excellent thing for one's comfort in life it is doubtful how far one could trust to either a serum or a sour milk as a specific against the inroads of Father Time. It may be noted, however, that Dr. Allchin has recently taken a very hopeful view of our being able to control the impaired nutrition and degeneration which correspond with senility and end in death. Since Metchnikoff wrote, the subject has been dealt with by Professor Osler, the new Regius Professor of Medicine at Oxford. Dr. Osler's remarks were taken up and commented upon by the daily papers with a strange lack of humour, and when Osler quoted, rather happily, from Anthony Trollope's novel, *The Fixed Period*, the suggestion of a College into which at the age of sixty men should retire for a year of contemplation before a peaceful departure by chloroform, the press in England and America soberly discussed it without either recognising the irony or the source of Dr. Osler's suggestion. But though Dr. Osler's joke was not perceived by the press yet he was perfectly serious in maintaining that all the effective, moving, vitalising work of the world has been done between the age of 25 and 40 years. It would, he argued, be an incalculable benefit in commercial, political and in professional life if men stopped work at sixty years of age. In a country like India where Viceroy's are the only officials permitted to be over 55 or 60 years of age such a view may meet with acceptance, but to say that men over the age of 45 are comparatively useless is to fly in the face of facts.

The latest writer *de senectute*, Sir James Crichton-Browne,* has no difficulty in refuting this statement of Professor Osler. A few of the many examples quoted must suffice for us to quote here. Nelson was 47 when a century ago he won Trafalgar, Moltke was 66 when he began the Franco-Prussian War. Palmerston and Beaconsfield were powerful and successful premiers when over 70 years, and the latter wrote *Lothair* at the age of 66. Titian's best pictures came after he was 50, Locke's great

essay appeared when he was 58, Bacon gave the *Novum Organum* to the world at the age of 59. Darwin was 56 when the *Origin* appeared, and Dryden 66 when he composed his finest poem, *Alexander's Feast*.

The true philosophy of old age is, like much else, to be found in Shakespeare, in Adam of *As You Like It* who in his old age was strong and lusty,

"For in my youth I never did apply

"Hot and rebellious liquors in my blood,

"Nor did not with unbashful forehead woo

"The means of weakness and debility."

Temperance, that is moderation in food and in drink, is the only panacea, and when this becomes more universal we shall surely see many men and women reach the age of 100 or 120 years.

Current Topics.

OUR SPECIAL PLAGUE NUMBER

WE again call attention of Medical Officers on plague duty to our proposed Special Plague number, for which Messrs. Thacker, Spink & Co. have offered a prize of Rs 100.

Intending contributors should communicate with the Editor, and papers should be sent in not later than the end of April. The subject is "*How Plague is Spread*."

THE SERUM THERAPY OF PLAGUE IN INDIA

UNDER the above title is issued No. 20 of the *Scientific Memoirs*. The memoir is edited by Lieutenant-Colonel Baumeister, the Director of the Research Laboratory, Bombay, and consists of a series of reports of the trials made in Bombay plague hospitals of serums prepared according to the methods of Lustig, Terni, Brazil and Roux.

The first to try anti-plague serum was Yersin, who appeared in the first year of the endemic. This serum was tried by many medical men and it proves for all practical purposes a failure, and in the words of the Indian Plague Commission "an indifferent substance which has no influence either for good or evil on the course of acute plague." Mr. Haffkine next tried his hand, but the results were equally useless. The serum prepared by Professor Lustig of Florence, prepared by the injection of horses with nucleo-albumen derived from masses of plague germs treated with chemicals, had a considerable vogue on the strength of certain early favourable reports, and in spite of a very considerable number of reports on it, we cannot say that it is other than a failure. No doubt in selected cases and in cases treated on the very first day, good clinical effects as noticed by Choksy, Mason, and

* The Prevention of Senility, &c. By Sir J. Crichton Browne, 1905. Macmillan & Co. Price 2s 6d net.

Simoud were obtained, but a review of all the cases reported up to now go to support the accuracy of the statement of the Plague Commission that they do "not afford conclusive evidence of the efficacy of Lustig's serum." The small number of cases treated by the serum of Terni, of Messina, do not give as any ground for hope, and the same must be said of Brazil's serum, the value of which is analysed in a long report by Mr Haffkine and Dr West. We may now quote the summary with which Colonel Banneiman ends the introduction to the papers here reproduced.

The reports are conveniently divided into two categories —

- (a) Those in which the conditions of trial were reasonably accurate, and where a series of control patients strictly comparable with those treated with serum were available, and
- (b) Those in which though the record of the serum-treated cases may be accurate, yet the control patients, where such are reported, were not in all respects strictly comparable for one reason or another with those receiving the serum treatment.

After giving tables, Colonel Banneiman remarks that from a study of these figures it is "evident that we have to deal with a remedy much less effective than serum proves itself to be in the case of diphtheria."

In the case of Roux's serum the inventor pleads for its use intravenously, this has been done in a few cases, and the following table deals with cases treated by Roux's serum used in three different ways, viz —

- (a) By subcutaneous injection only
- (b) By subcutaneous injection to begin with, followed by intravenous injection, and
- (c) By intravenous injection, followed by similar injections or in a few cases by subcutaneous medication —

	SERUM CASES			CONTROL CASES		
	No	Deaths	Case mortality, per cent.	No	Deaths	Case mortality, per cent.
Patients treated according to (a)	43	29	67.4	43	28	65.1
Do do (b)	12	8	66.6	12	6	50.0
Do do (c)	13	8	61.5	13	7	53.8
TOTAL	68	45	66.2	68	41	60.3

We cannot but agree with Colonel Banneiman that "the serum treatment as judged by these figures did not effect the case-mortality in the slightest degree." So far, therefore, the serum therapy of plague must be pronounced a failure, the utmost that can be claimed is that its use often has ameliorated the symptoms and prolonged life, but a curative serum is yet to seek.

HUMAN TICK-FEVER, OTHERWISE KNOWN AS RELAPSING FEVER

Under the name of "human tick-fever" the late Dr J Everett Dutton and Dr John L Todd, describe in the 17th Memoir of the Liverpool School of Tropical Medicine, the nature of this fever as seen in the Eastern part of the Congo Free State and the part played by the tick (*Ornithodoros moubata*) in its etiology.

The name human tick-fever, though it has obvious advantages, is perhaps an unnecessary addition to a disease already overburdened by nomenclature. It so happened that by the same post as we received the memoir of the Liverpool School, we also received the first volume of the new edition of Allbutt's *System of Medicine*, and on page 1167 of that volume we read of the following names for this disease — "Famine fever," "Five or seven days' fever," "Five days' fever with relapses," "Remittent fever," *typhus recurrens*, "Epidemic fever of Edinburgh," — "of Ireland," "Relapsing synocha," "Miliary fever," "*Die Hungerpest*," *fièvre à rechute*, and more recently it has received the name of "Spillar fever."

How far the symptoms of tick-fever and relapsing fever coincide will be seen by the following descriptions which we quote in parallel columns, one being that of Murchison in his great book on the continued fevers of Great Britain and the other is by Drs Dutton and Todd as given in the Memoir above referred to —

Relapsing fever (Murchison)

A contagious disease which is chiefly met with in the form of an epidemic during seasons of scarcity and famine. Its symptoms are —

A very abrupt invasion marked by rigors or chilliness, quick, full and often bounding pulse, white, moist tongue, sometimes becoming dry and brownish, tenderness at the epigastrium, vomiting and often jaundice, enlarged liver and spleen, constipation, skin very hot and dry, no characteristic eruption, high coloured urine, severe headache and pains in the back and limbs, restlessness and occasionally acute delirium, an abrupt cessation of all these symptoms with free perspiration about the 5th or 7th day, after a complete apyretic interval an abrupt relapse on the 14th day from first commencement, running a similar course to the first attack, and terminating on or about the third day of the relapse, sometimes a second or even a third relapse, mortality small, but occasionally death from sudden syncope, or from suppression of urine and coma, after death no specific lesion, but usually enlargement of liver and spleen.

Human tick fever (Dutton and Todd)

"In all cases the onset of the fever has always been sudden, and in no instance preceded by a distinct rigor. The patient is prostrated, and complains chiefly of severe headache, usually frontal, occasionally general. Boneache in the limbs, and backache are distressing the patient feels as if well beaten. There is a marked distaste for food, vomiting generally occurs once or twice, but has never been continued. Slight diarrhoea is fairly constant, constipation may occur. The evening temperature during attacks frequently reaches 104°-104.5° F, the highest temperature recorded is 105.3° F. There are usually three or four attacks which often end in more or less profuse perspiration.

As a rule each attack lasts for three or four days, and the intervening periods vary from five to nineteen days.

The spleen is sometimes, but not always, enlarged, Herpes, epistaxis and hiccup were complications observed. The most characteristic features of the disease have been the prostration of the patients and the quick return to comparative health with the fall of the temperature.

It will be agreed that the above descriptions written at intervals of not less than 30 years, refer to the same disease. Murchison studied

the disease in London, (after his retirement from the Indian Medical Service), and Dutton and Todd in Eastern Congo, in 1904, but the results are essentially the same.

The disease is a very old one, Hippocrates has described it, but up till the papers of Henderson of Edinburgh in 1843, the disease was, in the British Isles and in Europe generally, often confounded with typhus and typhoid. Up to the middle of the previous century the disease was very common in Great Britain and in Europe, and numerous great epidemics are on record. Napoleon's army suffered from it before Cairo and Dr Sandwith has recently described its persistence in Lower Egypt. In India the disease under the name of relapsing fever is well known, and still more recently has been referred to under the name of spullai fever. It is, however, very desirable that more work should be done on this disease, and it should be determined what place it is to hold among the continued fevers of India.

In the etiology of relapsing fever, famine or scarcity has usually, but not invariably, been a great factor. In Ireland it was largely epidemic after the famines of 1819, and 1847-8. The German name for the disease, *hungerpest*, points unmistakably to the connection, and Vandyke Carter, whose studies on the *spirochæte obermeieri* will ever reflect credit on the Bombay Medical Service, stated that "it was brought to Bombay in 1877 by the peasantry flocking in from the famine-stricken districts." More recently it has persisted in a mild way concurrently with plague in that city.

By Murchison and the older writers the great "contagiousness" of the disease was insisted upon, and in the Edinburgh epidemic of 1843-44 most of the medical officers of the fever hospitals were attacked. A recent experience of an epidemic in a Egyptian prison recorded by Sandwith points equally to the very communicable nature of the disease.

The first great step in the discovery of the etiology of the disease was when Obermeier described the spiroillum or spirochæte now well known by his name. His discovery was confined by Vandyke Carter and Koch, and since then by numerous observers.

Up till recently the means by which the disease is spread was not known, but the work of Ross, Milne, Dutton and Todd have left no doubt that the specific microbe, the spirochæte, can be carried from one person to another by the tick known which has been identified by Mr Pocock of the British Museum as *Ornithodoros moubata**. This is the same species of tick as has been identified by C. Christy with tick-fever in Uganda.

If the identity of "the relapsing fever" of Europe and elsewhere with the "human tick fever" of Eastern Congo and Uganda be admitted, and if the disease is transmitted by means of this tick, it is obvious that this or some allied species of tick must have been and must still be responsible for the spread of this disease, and we do not know if this species of tick has been found in Great Britain or on the continent. Moreover, the observations of Kailinsky and Tictin in Bosnia seemed to prove that the bedbug, *Cimex lectularius*, was the means by which the spirochæte was conveyed from the infected to the healthy.

It is a pity that the new researches on this disease are not reviewed in the light of the old, for such a point as this, for example, is left untouched in the report before us, the authors of which conclude as follows—

(1) Tick fever is clinically identical with relapsing fever, and has for its pathogenic agent a spirochæte.

(2) The spirochæte is probably spirochæte Obermeieri.

(3) The tick, *Ornithodoros moubata*, can transmit the spirochæte from animal to animal.

(4) The transmission is not merely mechanical, but some developmental process is carried on in the tick.

(5) A considerable degree of immunity or tolerance to the spirochæte can probably be acquired.

We congratulate the Liverpool School of Tropical Medicine on the continued excellence and importance of the valuable series of monographs issued under its auspices, of which the one now before us is not the least valuable.

AN ANALYSIS OF 44 LITHOLAPAXIES AT JAIPUR

An interesting tabular statement is to be found in Lieutenant-Colonel Duell Pank's report on the medical institutions of Jaipur. It gives details of 44 litholapaxies done by him and his Assistant-Surgeon, Daljang Singh Khanka, in the Mayo Hospital, Jaipur.

The table is worthy of analysis as showing the nature of the cases which come for treatment by litholapaxy in this hospital.

The patients were natives of Jaipur city and district, Hindus and Mahomedans. Of the 44 cases operated on by litholapaxy, the ages were as follows—Two years and under, 3 cases, over 3 to 5 years, 11 cases, over 5 to 10 years, 15 cases, from 10 to 20 years, 7 cases, from 20 to 30 years, 3 cases, one from 30 to 40 years, and four cases over 40 years. This shows the enormous excess of cases in the period of infancy and boyhood. There were only three females to 41 boys. The symptoms had lasted before operations for varying periods from two months to three years. The average duration in minutes for the crushing operation was only twelve minutes and for washing out only seven minutes. The crushing

* This is the name given by Dutton and Todd, on the authority of Pocock and R. Newstead. It appears to be also called *Ornithodoros savignyi* (Audouin, 1827) or *Argas moubata* Murray, 1877. (See Braun's *Animal Parasites of Man*, Eng. Ed., p. 372.)

varied in duration from two minutes in a case of a stone weighing 10 grains in a child of $3\frac{1}{2}$ years, to 45 minutes in an oxalate stone of 124 grains in a boy of eleven. The period spent in washing out varied from two minutes in the case of a stone of 20 grains in a boy of three, to 25 minutes in a phosphate-urate stone of 30 grains in a boy of five, in which the total operation took 45 minutes. Of the 44 stones thus crushed the majority (24) were oxalate and phosphate, seven were oxalate and urates, six were urates, three were phosphates, two phosphates and urates and two pure oxalate, that is, oxalates were found in 33 out of 44 of the stones operated on by litholapaxy.

The smallest stone weighed four grains and consisted of phosphates and urates, the largest weighed 570 grains and was similarly composed. The size of the lithotrites used varied from numbers 5 to 12, and the largest (No 12) was used ten times, No 8 was used fourteen times, and No 5 eleven times. The biggest stones were 570 grains, phosphates and urates, in a man of 38 years of age, who had suffered for one year, the stone was crushed in eight minutes, and the washing out done in nine more minutes, a No 12 lithotrite was used, with a 16 canula, and the patient was discharged from hospital in thirteen days, an admirable result. The next largest stone was 507 grains oxalate and phosphate, in a youth of twenty, who had suffered for three years, the crushing took 37 minutes and the washing 18, a No 12 was used with a 16 canula, and the patient left hospital cured in five days.

The largest pure oxalate stone was 124 grains in a boy of eleven, the crushing took 45 minutes and the washing 30 more, a No 8 was used with a 10 canula, and the patient was discharged in ten days.

The above analysis of the stone cases operated on by litholapaxy is an indication of the nature of the work done in this fine hospital, of which Sir Frederick Treves wrote in his book of travel "*The other side of the Lantern*,"—"A hospital, the equipment of which is not surpassed by any institution of its size in England."

THE MOSQUITOES OF THE ADEN HINTERLAND

In the *Journal of the Bombay Natural History Society* (November 1905), an admirable study by Lieutenant W. S. Patton, I.M.S., appears on the culicid fauna of the Aden Hinterland.

When serving with a field hospital in the Hinterland, Lieutenant Patton was struck by the number of men suffering from malaria, yet nothing was known about the species of anopheles that was there carrying the malaria parasite. The country is mostly sandy desert and low hills, but the plateau of D'Thala is 5,000 feet and has a fine climate comparable to that of Poona, the rainfall is but 20 inches. Lieutenant Patton describes five species of anopheles which he believes to be new. He has named them locally, thus enabling

any one to locate the species, the first is *Anopheles arabiensis*, n. sp., which is found from Sheik Olbaman to D'Thala, and is the common anopheles of the district and the chief malaria-carrier. It breeds in running water and is found in all small streams and irrigation channels, and even in wells, the water of which is 40 to 50 feet below the surface. This mosquito comes into season from November to May, a period which corresponds with the fever season at Sheik. At D'Thala this mosquito was dissected and sporozoites were found. This mosquito is not identical, according to Lieutenant Patton, with *A. Wellcomei*, nor *A. Pharansus*. The second anopheles described by Lieutenant Patton as a new species is *A. D'Thali*, which like the *A. arabiensis* is well described and illustrated in the pamphlet before us. This mosquito was common at D'Thala and Nobat and was biting freely. Mr. Theobald recognises it as undoubtedly a new species but related to *A. nili*.

The third new species of Lieutenant Patton is *A. tabani* which is found in all the rivers and springs of the Hinterland, it only breeds in running water and pools connected with it. It is a wild species and does not come to human habitations, the malarial parasite was not found in it. It is like, but distinct from, *A. theobaldi*.

The fourth anopheles is *A. jehafi*. The egg is very peculiar. The mosquito was found in springs near D'Thala and Jehab and was caught in tents. It is a large anopheles and distinguished from other Arabian varieties by four palpal bands.

Anopheles azuki is a wild species, and was only found in the Azuki spring. It is closely related to the *A. Tunklandi* of Liston.

Lieutenant Patton also describes the *Culex arabiensis*, a new species, the *Stegomyia sugens* (Weid.), the *taniorhynchus tenex*, the *Culex pipiens*, *C. fatigans*, *C. concolor* &c.

On the subject of the flight of mosquitoes Lieutenant Patton has the following interesting note which we quote in full as well as his remarks on malarial prophylaxis in the Hinterland of Aden—

"Since starting the study of the mosquitoes I was constantly making observations on the maximum flight of anopheles. At Nobat in May 1904, I lived in a Staff Sergeant's tent on the ridge, the river was directly below about 450 yards. The wind at night was always fairly strong and from the S.E. Every morning I was able to capture from six to ten female anopheles (*A. arabiensis*) in my tent and in the tents on the further side about 800 yards from the river, I caught from 50 to 60 every morning. At that time there were many cases of malaria in hospital. The camp at Nobat has now been moved $1\frac{1}{2}$ mile from the river, there is no water of any description lying between the camp and the river, and yet in January 1905, I caught a large number of *A. dithali*. This anopheles was undoubtedly flying this distance to obtain its food, though there was a large Arab village close by. The only explanation I can offer is that as the Arab tents and houses were constantly full of smoke, the mosquito preferred to travel further, where they would not be put to this inconvenience. I need hardly say that though some water was obtained from the river, every precaution was taken to prevent larvae from being brought into the camp and I could not

find a single specimen in any of the barrels. The drinking water was obtained from a pool about two miles to the north of the camp. This pool was connected with a spring which here came to the surface when the sand was removed. There were no larvae here of any description. When at Ulub in May I found *A. arabiensis* always in two or three E. P. tents facing the Ulub well which was 900 yards away. About 100 yards above the well were two Arab huts, yet this mosquito preferred to come to the tents. I am certain it was the smoke in the tents that kept them away. The Arabs are in the habit of driving the mosquitoes away by a smoking fire.

Now with regard to malaria prophylaxis in the Hinterland. Though I stayed in many of the places where I knew malaria was being contracted, viz., Nobat, Old and New Camps, Ulub and Sheik Othman, I never contracted malaria, because I used my mosquito curtain with extreme care, invariably fixing it up early and never going to bed without seeing that there were no mosquitoes inside. I only once took three grains of quinine and can only recollect finding *A. arabiensis* four times in my curtains in the morning. I would recommend any one going to the Hinterland to provide himself with a good mosquito curtain fitted on to a camp bed and to use this curtain from Sheik Othman onwards. He should also observe the following points—

- (1) See that there are no holes.
- (2) Have the curtain put up early and be most particular to have all mosquitoes driven out that may have settled on the inside when the curtains were turned up.
- (3) To see that there is no entrance left after he has got into bed.
- (4) To have a piece of cloth 'let in' (about 8 inches broad), where his arms or legs are likely to touch the curtains when asleep. This is so often forgotten. Camp beds are often cramped for various reasons. It is a good plan to have the rods fixed to the legs and diverging so that the curtain falls away from the bed and allows more space.
- (5) Wear putties when sitting out at night. I have seen anophles (*A. dthali*) at Nobat come into the mess tent at dinner time and fly round the lamp.
- (6) Not to hang up dark clothes, as mosquitoes prefer dark objects to rest on.
- (7) Keep all trunks and boxes closed as they are often means of conveying mosquitoes from one place to another.

We congratulate Lieutenant Patton on his admirable study of the entomology of this part of Arabia. A study like this is an admirable scientific hobby, and we would be glad to see many more such studies by young officers in military employ, who could not employ their leisure better than making biological studies of their stations like the above.

SEA SICKNESS

As the leave season is approaching, and some of our readers and many of their patients will be going home, the following note on sea-sickness which I quote from the *Medical Chronicle* (December 1905), will be of interest—

In an article in *Rev. Chir. des Clin. Med.* (1905)—Dr. G. Bastogi summarises as follows the various views which have been held as to the cause of sea-sickness—

- "It may be due to,—
- 1 Fear. Plutarch.
 - 2 Miasma. Semanas, 1850.
 - 3 Bacterial infection. Autric, 1868.
 - 4 Diminution of arterial pressure. Wollaston, Pellain, 1847.

- 5 Congestion of the medulla and parts of the brain. Chapman.
- 6 Repeated cerebral commotion. Fonesagrives, 1856, Autric, 1868.
- 7 Displacement of cerebro spinal fluid. Autric, 1868.
- 8 Optical vertigo. E. Darwin.
- 9 The muscular contractions necessary to preserve equilibrium. de Rochas, 1871.
- 10 Upset of the "static centre" (semi circular canals, cerebellum). Darnall, 1899.
- 11 Disturbance of psychosomatic activity (=a "kinetosis"). Rosembach, 1901.
- 12 Repeated changes in the mutual pressures of the liquids and solids of the body.
- 13 Diminution of the respiratory exchange.
- 14 Nervous and muscular exhaustion, and hyper-excitability of the centre for equilibrium.
- 15 Upset (=anaemia or hyperemia) of the cerebral circulation.
- 16 Reflex action.
- 17 Splanchnic hyperemia and commotion of the viscera together.

The modern tendency is to ascribe sea sickness to the combined action of several of these causes—to the combined effect, for example, of splanchnic hyperemia and cerebral anaemia with the physical action of the ship's movement upon the abdominal viscera, or to combined optical vertigo and repeated changes in the position of the body (G. Hewitt).

Bastogi describes the treatment of sea sickness under three heads—

A Prophylactic. Practise, such as that entailed by a seafaring life, suggestion, in the case of the neurasthenia, the bromides (gr xx—xxx, *ter die*), taken for three days before and for the first few days of the sea voyage (Beard, 1880), the use of a warm and tight wide abdominal binder (Pampoukis, 1888), avoidance of a full stomach (Celsus).

B Mechanical and physical treatment. Adoption of the horizontal position, with or without elevation of the legs, use of warmth, and an abdominal binder, respiration should be slow and deep (Rosembach). Ebstein would suggest that the cabin used by the traveller should be illuminated by red light.

C Medicinal. Amyl nitrite, either inhaled or taken by the mouth, is the most highly commended of the drugs. The bromides in fairly large or large doses, or chloral if there is much sleeplessness, are also widely used. Opium in various forms, chloroform (in 11—v on a lump of sugar), antipyrine (gr xxx—xl per diem), and various cardiac stimulants, have also been recommended. Washbourn and also Dukes have advised the consumption of sea water, which will act both as an emetic and as a saline purgative, and will be found to give prompt relief.

WE are asked to state that an investigation as to the *Heredity of Albinism in Man* is being carried out by Professor Karl Pearson, F.R.S., of University College, London (England), with the co-operation of Mr. E. Nettleship (Shottermill, Surrey, England), and Dr. E. Stainer (Physician to the Skin Department, St. Thomas' Hospital), 60, Wimpole Street, W., London (England), and that cases bearing on the subject, either positively or negatively, will be very thankfully received by any of those gentlemen. The investigators desire to collect a large series of examples of Albinism, complete or incomplete, general or partial, in which the family history of the albino patient can be traced for one, two, three or more generations. The sex and prevalent colour of eyes and hair in as many of the patients' relations and ancestors as possible.

should also be noted whether any of them were albinotic or not, also all instances of consanguineous marriage. Cases of Albinism of the eyes in persons with congenitally pried skin (most easily recognised amongst dark races) will also be very valuable even without family history, acquired leukoderma being of course excluded.

MANY of us will recognise the substantial truth in the following remark, which we quote from a lecture at Philadelphia by Dr John B Deaver, the well-known Surgeon —

"The tendency to base a diagnosis solely, or almost entirely, on laboratory findings was widespread and becoming more constantly prevalent. The reason that this fondness for laboratory diagnosis was so widespread was, he thought, because the students of medicine were taught laboratory methods to an undue extent. The constant cry in all medical colleges at the present day was for funds to build and equip laboratories. The students were forced to spend hours at a time in the laboratories studying the products of disease or the causes of disease while the time formerly allotted to the study of disease itself was reduced to a minimum or was altogether expunged from the roster. Instead of drilling into the minds of students the eternal principles of surgery, the faculty sent them into the laboratory, to the end that they might become adepts in the art of blood counting or may be rendered capable of distinguishing between consanguineous tribes of micro organisms. In his judgment this was a fatal mistake."

In addition to the London School of Tropical Medicine an endeavour has been made to start a London School of Clinical Medicine in connection with the Seamen's Hospital, Greenwich. The staff is a good one, and the new school will probably find favour with men home or study leave from India, as it will be in the same hospital as the School of Tropical Medicine.

MESSRS THACKER SPINK & Co will shortly produce a new and important book on *Aseptic Surgery in India*. At the present time this subject, so inseparable from successful surgery, is practically without its literature and a handbook is sadly needed as a guide and *aide-memoire* for students and practitioners. Major E. A. R. Newman, I.M.S., is an author who has appreciated the difficulties of a Mofussil Surgeon's practice and has succeeded in overcoming them. He has made a special study of Asepsis with the idea of combatting the serious drawbacks with which surgeons in this country must necessarily contend, and it is the opinion of those who have viewed the arrangements devised by Major Newman to ensure perfect Asepsis that he has been extremely successful. A good deal of friendly pressure has been brought to bear on Major Newman by his brother-officers to give his experiences to the world and it will be good news to many that he is doing so. The price of the book will be moderate and it is safe to say that few of those interested will fail to possess a copy of what will undoubtedly be a valuable work.

We shall publish in our next issue the report of the successful experiments made by Capt Clemesha, I.M.S., Officiating Sanitary Commissioner, Bengal, on the use of chlorinated lime as a purifier of septic tank effluents.

Reviews.

The Animal Parasites of Man.—By MAX BRAUN. Third Enlarged Edition. Translated by MISS P. FALCKE, and brought up to-date by DR L. W. SANBON and MR F. V. THEOBALD. London: John Bale Sons and Danielson, Ltd, 1906.

THIS is an extremely valuable book which has reached three editions in German, and in its present guise will be sure to have a very great success among English-speaking medical men.

There is little need in these columns to emphasise the great importance of parasitology, but the rapid strides taken by research in tropical diseases of recent years renders it absolutely necessary to incorporate new matter in every new book on the subject.

A glance at the table of contents will show the great amount contained in this volume and will show our readers how useful the book must be to them.

After an introduction of some twenty pages on parasitism, the author goes on to describe the animal parasites of man, beginning with class 1, Rhizopoda, order 1, amoebina, and a good account of no less than nine species of amoeba is given. The amoeba coli is fully described and the various opinions of its relationship to dysentery is discussed, but up to-date as the book is, it does not refer to the work of the Manila Laboratory, which we quoted pretty fully from in our special dysentery number last year.

The section on the *Flagellata* is of special interest at present, but an account of the trypanosomes or of malaria which contains no allusion to the increasing literature of the Leishman-Donovan bodies is scarcely worthy of a book which is dated 1906. In fact, as is not uncommon in German books, the very full bibliographies attached to each chapter contain almost always only German references, and the editors of the English edition have added but little, and that somewhat too exclusively consists of references to work which has received the sanction of the London School of Tropical Medicine. The deficiency in references to recent medical literature in English is chiefly in the chapters on the protozoa, the older work of English writers on cestodes and nematodes is usually fully acknowledged.

The sections devoted to the coccidia, the malarial plasmodia, and those on trematodes and cestodes are particularly full and good. The section on filaria is also good, but it is curious that when a paragraph was added on

the transmission of the *filaria bancrofti* through the mouth parts of the mosquito, the discovery is attributed to Dr G C Low and to Dr Sambon himself while the independent and simultaneous discovery of the same fact by Captain S P James, I.M.S., is quite ignored.

Perhaps the most useful part of the whole volume is the section on Arthropoda, which has been edited by Mr F V Theobald. Spiders, mites, fleas, ticks, itch-mites, hair-mites, tongue-worms are all described and very useful these chapters will be found.

The great family of insects is well described and descriptions are not omitted of even bugs, lice and "such small game." The chapter devoted to mosquitos is naturally complete, and Theobald's classification is followed. A section on the gad-fly and on the tsetse-fly end the book.

The book is beautifully illustrated and well printed. We regret that the editors did not see their way to make fuller and more up-to-date references to recent medical literature, but this is a defect of all translations. Up-to-date references can only be added in an artistic way, but in spite of these minor blemishes we have no hesitation in recommending the book to our readers, and in concluding that it is the best book on the animal parasites of man in the English language, and the profession is indebted to Dr L Sambon and Mr Theobald for their industry in introducing this standard work to the English-reading medical profession.

Strength and diet—A Practical Treatise with special regard to the Life of Nations—By The Hon R. RUSSELL LONGMANS, GREEN & Co, 39, Paternoster Row, London, New York, and Bombay, 1905. Pp 649. Price 12 6, nett.

THE general conclusions which this work endeavours to establish are given in brief in the preface. They are three in number, and we cannot give an idea of the book better than by quoting them.

1 "That man thrives on almost any kind of diet common to a nation, the general conditions being favourable.

2 "That both races and individuals living entirely or chiefly on plant food or on plant food with the addition of eggs and milk, are stronger and happier, other things being equal, than races and individuals living chiefly on the flesh of beasts.

3 "That frugal persons and nations live better and longer than others, and are more free from disorders of body and mind."

With the first and the third propositions most, we imagine, will agree, but the second will not by any means meet with universal consent.

The book is in great part made up of quotations from various authors, in support of the writer's views. The innumerable authorities quoted are of very different authority, though apparently all is fish that comes to the writer's net, and a quotation from an anonymous correspondent

of a daily newspaper serves as well to support his views as one from a standard work of reference. For instance, on page 425 three quotations are given, the first from Lauder Brunton, the second from Huxley, and the third from the anonymous writer of a letter to the *Daily News*.

On page 60, the first page of the book proper, (after the introduction), opens with a quotation from Cuvier's work on *The Animal Kingdom*, to the effect that "the natural food of man, judging from his structure, appears to consist of fruits, roots, and the succulent parts of vegetables." Surely there is little resemblance between the stomach of man, and that of the herbivora. The same idea is further developed on page 72, where the author writes—"In the carnivora, the alimentary canal is three times the length of the body, in the herbivora thirty times, in the omnivora ten times, in the ape twelve times, in man twelve times." On his own showing, the alimentary canal of man approximates much more nearly to that of the carnivora than to that of the herbivora. But Gray, the standard authority on Anatomy, opens the chapter of his work which describes the organs of digestion with a statement that the alimentary canal in man is about thirty feet in length from mouth to anus. This would make it between five and six times the length of the body, (less than half its length as given by the author), and obviously makes it much more similar to that of the carnivora than to that of the herbivora.

Another somewhat curious statement on pages 185, 186, describing tapeworm in Iceland, runs as follows "The very large and fatal prevalence of tapeworm is due to the dogs, which are inmates of these crowded houses, the eggs are conveyed from the hand, *which has touched the dog's skin*, to the mouth, and reach the intestines, where they develop." The italics are ours. Surely it is not by transference from the dog's skin that tapeworm is caused. The dog suffers from "tapeworm," which through its ova infects the man with hydatid disease, but the ova of the dog's tapeworm are not found in its skin, but passed with its faeces, and once outside the dog's body, may reach the human interior in various ways which may easily be imagined, and are best left to the imagination.

It must not be supposed, from the above notes, that we are altogether opposed to the views developed in this book. On the contrary, there are many with which we cordially agree. In particular, the author does well to lay stress on the evils of eating too much. On page 31 several medical authors are quoted in support of this view, one of whom goes so far as to say that "a vastly greater number of persons in the empire die of over-eating than of starvation." This is a strong assertion, but we quite believe that it is true. Indeed, we would go so far as to say that, nowadays, more harm to health is done by eating

too much than by drinking too much. Few of us drink too much, but most of us eat too much, day after day, year after year. The excess may not be great in any individual day, but is continuous. The man who eats too much does not obviously "make a beast of himself," as he who gets drunk, but the harm to his constitution is done all the same, though not in such an obvious way.

Speaking of the above-quoted statement, that more men die from over-eating than from starvation, the author writes—"India must be excluded, I think, from this estimate." Doubtless the great mass of the Indian population do not overeat themselves, in fact cannot do so. And, of course, not only in famines, but throughout the country and throughout the year, numbers die of what might be called "starvation," but not so much, in the latter case, from want of food, as from want of *appropriate* food. We have known men pulled down by chronic dysentery, with digestive apparatus incapable of dealing properly with slops like sago and arrowroot, insist on eating such articles as parched rice, half-raw gram, &c. And, in spite of poverty among the masses, that overeating is not unknown among those who can afford it, the ample corporations of many of the well-to-do give obvious proof.

On pages 51, 52, De Quincey, Carlyle, Darwin, Huxley, Browning, and Herbert Spencer, are quoted as examples of men whose lives were made a burden to them, even if their work was not affected, by dyspepsia.

On page 532, it is asserted that the increase of cancer of late years is owing to increased consumption of meat, tea, coffee and narcotics. Granted that the cancer death-rate has increased of recent years, we certainly do not know enough about the reason to make any dogmatic assertions on the subject.

There are a number of references to India, throughout the work, which should be of interest to readers in this country. On page 82 it is stated that the Afghans eat little flesh, and on page 209 that the Sikhs live almost entirely on vegetable food. Both Sikhs and Afghans eat meat, and we believe both are quite ready to eat as much meat as they can get. On page 94 rice is quoted (with wheat, oatmeal, and beans) as an example of food of a very high nutritive value, at small cost. On page 208 occurs the statement—"The weakness of the rice-eating Hindu is the consequence of extreme poverty, and of the prevalent malaria." Bengal is the chief rice-consuming province, and malaria is very prevalent throughout Bengal. But it is not correct to say that the weakness of the Bengali ryot is due to poverty. Malaria may have, no doubt has, much to do with it. But the Bengali ryot is better off than his fellow in any other province in India. So well off is he indeed, that in some districts most of the heavy agricultural work, ploughing, thrash-

ing, &c., is done by immigrants from poorer districts, the Santhal Paiganas, Chota Nagpur, &c., who come down to Bengal for such work, and who make their living by doing for him the work of the Bengali ryot. Almost all the coolie work in many districts of Bengal is also done by imported or immigrant labour, the class who elsewhere would form the labouring class are much too well off to work.

The same page, 208, contains the assertion that the Salt and Property tax bear extremely hardly on these men (the poor in India) "from whom the greater part of the wealth of India is derived." The salt tax has been considerably reduced during the last few years, while no property tax affects, or has ever affected, the poor at all.

On page 616 it is stated that "there are hundreds of ways of serving rice... .. in which Italians and Indians are specially skilled." We wish our cooks in India knew, or could carry out, a few of these "hundreds of ways."

The Vermiform Appendix and its Diseases —

By HOWARD A. KELLY, A.B., M.D., and E. HARDON, M.D. Pages 827. Illustrations 399 and 3 lithographic plates. W. B. Saunders & Co., Philadelphia & London.

THE author in his preface states that this monograph is the outcome of an investigation begun some years ago when he began to notice the condition of the appendix at every abdominal operation, and he has had a very large experience in doing so.

He also firmly holds the view that surgery and pathology are best taught by demonstration, and for this he has paralleled the text with numerous illustrations from the hand of a skilled artist. These are of such excellence that it will be difficult or impossible to surpass them.

This method of illustration is much superior to photography alone, again the majority of students find that it is much easier to remember things they have seen than those about which they have only read, with no illustrations to help them.

The opening chapters deal with the history of appendicitis and are most interesting, describing the earliest cases in the literature, the recognition of lesions in this organ as a definite cause of a well-defined series of symptoms and finally the progress in the surgical treatment. Several chapters are taken up with the account of the anatomy of the organ both macro and microscopic, including full descriptions of the blood and nerve supply, etc.

As regards the physiology of the appendix, it is recognised that practically nothing is known, although with the numerous abdominal operations performed nowadays, it is seen under many varying conditions. The only ascertained fact being the occurrence of regular peristaltic contractions when the organ is artificially distended with a rubber balloon.

The section on Pathology begins with a description of the vermiform appendix as seen at autopsy with all the complications that may be met with. The varying conditions found when the organ is removed during life are very fully dealt with, including the bacteriology and also a description of the changes found when any of the specific diseases, such as tubercle, amoebic dysentery, etc., attack it.

The Etiology is discussed under the headings of predisposing, exciting and final causes, the relation of foreign bodies to the causation and the marked frequency of cases in which pus having been found in the appendix are followed by liver abscess is mentioned.

As regards race, the authors think that it is an apparently insignificant factor, but nevertheless state that the negro is comparatively exempt from the disease. In a large institute attended only by negro students living on the premises and taking only a simple diet, appendicitis was practically unknown, but in the same district where students lived in various boarding houses, in the town out of 400 there was an annual average incidence of 7 cases. The explanation given being that the exemption of the negro was due to the simple diet, the amount of outdoor exercise they took, and freedom from digestive disturbance. Possibly the infrequency of the disease among Indians may be due to their simpler diet.

Succeeding chapters deal with the clinical history in ordinary cases, the symptoms, complications and diagnosis. Many chapters are also devoted to the relation of typhoid fever to appendicitis and also the characters when occurring in the child.

Coming now to the important question of treatment, the authors hold that there is only one, *i.e.*, surgical. The duty of a physician when called to see a case of appendicitis being expressed by W. W. Keen's aphorism, "the first indication in appendicitis is to call in a surgeon."

Then follows the statement that "the ideal time for operation in acute appendicitis is within the first few hours", this is, however, qualified by saying that if the surgical skill at command is not all that can be desired, the patient may do better to take the chance of a spontaneous cure or wait for the formation of a definite localised abscess which can be opened and drained later, of course the cases with grave peritoneal infection from the beginning being excluded.

The question of operation after the lapse of two or three days from the onset, *i.e.*, the intermediate operation, and also the late and internal operations, are fully discussed.

With abscess cases a prolonged search for the appendix and its removal is not recommended.

The preliminaries to operation, the various incisions and methods of removal of the appendix followed by various authors are very fully and completely described.

The preference in anaesthesia is given to gas followed by ether, but gas alone can be given.

The removal of the appendix is effected by crushing, followed by the application of Paquelin's cautery. In abscess cases many methods are described, in pelvic cases a strong bias is shown for drainage by either the rectum or vagina when feasible.

As regards incision, the authors do not limit themselves to any one, but employ either McBurney's or Battle's according to the indications.

The treatment of peritonitis and also the after-treatment of an ordinary case of any complications which may arise later are fully given.

The few remaining chapters describe neoplasms, tubercle, the relation of appendicitis to disease of the female pelvic organs, pregnancy, trauma, etc.

In conclusion, it can be said that this book contains all that is known on the subject, it is eminently readable, the illustrations are life-like, and the general appearance of the book is admirable.

Practical Nursing.—By ISLA STEWART and DR H. E. CUFF, London. New Edition. W. Blackood and Sons.

THIS is an admirable book on nursing and it has succeeded in its aim to be before all practical. It gives every step of the performance of any nursing operation. In addition to thoroughly and practically describing each operation, the book also gives enough of medicine and surgery to enable the nurse to understand the reasons for carrying out the orders received. The chapter on ward hygiene is excellent and the importance of ventilation and pure air is insisted upon. Most useful, too, are the chapters on the personal care and on observation of the sick. The chapter on diet is also good and full of practical hints. There is a chapter on the various kinds of baths, from which the practitioner might learn much. That on the nursing of sick children, on contagious cases, on enteric, and after nursing in certain operations and on surgical cleanliness are all good. We can strongly recommend this book. It is thoroughly practical and well worthy of the attention of Civil Surgeons in India. Its author, Miss I. Stewart, is matron at "Baits," and she has been assisted by Dr. H. E. Cuff, of the N. E. Fever Hospital, London.

The Mosquitoes of Para.—This is No. 4 of the Memoirs of the Goeldi Museum of Natural History and Ethnography in Para.

THIS number contains an account of four studies on the indigenous mosquitoes, especially those species troublesome to man, by Professor Dr. Goeldi, the Director of Para Museum. Para is a large City in Brazil, at the mouth of the Amazon, on the Equator, mean temperature 80°, range of temperature 30°, (Calcutta mean 80°, range nearly 60°). Very wet half the year.

There are 164 pages of print, 100 well executed figures and photographs, and five beautiful chromolithographs of twelve of the commonest mosquitoes—*Stegomyia fasciata*, *Culex fatigans*, *Teniorhynchus fasciolatus*, *Anopheles argyrotarsis*, *Mansonia titillans*, *Culex serratus*, *Fanthinosoma musica*, *Culex confimatus*, *Sabethes longipes*, *Megarrhinus separatus*, *Lima-tus durhami*, *Trichoprosopon nigripes*

The first study treats of Para mosquitoes generally, considered as a public nuisance, and contains an interesting and chatty account of the various species met with there. South America is credited with 46 species (the same number as Europe), 42 of these are met with in Brazil, and 18 of these 42 in Para and the Lower Amazon. Considering the geographical situation of Para, 18 species does not seem too liberal, when we think of the dry Punjab with its 20, but of course this has nothing to do with numbers. It is gratifying to see frequent references made to British workers, Theobald (who is variously called professor, doctor, mister) Durham, and the Liverpool School. The fourth mosquito on the above list is responsible for malaria, *stegomyia fasciata*, of course, for yellow fever. Goeldi writes of this species—"A most insolent mosquito, which makes unheard of calls on our patience and resignation." How true also in India! This insect is found all over the tropical and sub-tropical world. *Culex fatigans* is as much with us as with the Brazilians, and is there responsible for Filaria. The author then goes on to describe details (with photographs) as to eggs, the manner of laying, posture of female, arrangement of eggs, &c., anatomy of larvæ, pupæ, periods of development.

The evening song of mosquitoes is quaintly described as "an orchestra and chorus conducted by the baton of Eros." "Whoever works at the subject, can quickly convince himself that there are two sounds, one high, and the other low, the first is produced by males, and the second by females. With some practice, he equally arrives at the result, that there are differences in the *timbre* of the sounds produced by different species." By *timbre* here, Professor Goeldi probably means *pitch*. A series of observations on the musical note given out by some Indian mosquitoes has already been made, in Ferozepore, with the rough conclusion that, as a rule, *Culex* sings higher than *Anopheles*. These observations are in part confirmed by Dr. Goeldi.

Regarding the extirpation of mosquitoes, the author recommends drainage works, mosquito brigades and education by public notices. The last has done real good in Northern Brazil. He also hints that leper asylums should be thoroughly isolated, as mosquitoes may conceivably carry the leprosy bacillus.

The author then goes carefully into details of experiments with a view to find out the influence of the kind of food (sweet juices or blood) on fecundity and length of life with reference to the

two most common species. His general conclusions are as follows: Honey is best for longevity. Blood is preferred by the female, but shortens her life. Shed blood is not liked. Drawn out (i.e., sucked) blood is favourable to early deposit of eggs. Honey retards egg laying. *Stegomyia* can keep latent the faculty of laying eggs, even for 102 days. In other words, honey is good for the individual, bad for the species, blood is bad for the individual, and good for the species. The unfecundated female of *stegomyia*, bred in captivity, easily takes blood (That agrees with the Indian experience of mosquito-feeding in general). Blood diet constitutes, in *Stegomyia fasciata* and *Culex fatigans*, the explosive, so to speak, of ovulation. Unfecundated *Stegomyia* can lay eggs, which, however, are sterile (pseudo-parthenogenesis).

Similar biological work has been already done in India, but there is certainly more to be found out about our Indian fever species (*Myzomyia culicifacies* and *M. Listoni*), and our own *Culex fatigans*, which last can probably be met with throughout the year.

The third study then describes thoroughly the life history of the principal species, with beautiful photographs showing various important points as to ova, larvæ, nymphæ.

Surely very little else can be found out about *Culex fatigans* and *Stegomyia fasciata* in Brazil. Sound work like this must have great interest for us, where the same two species are so plentiful. Indeed, seeing that *Stegomyia fasciata* is a common mosquito in America, and carries the poison of a common disease, and that the same mosquito is very common in India, the hope inevitably arises that some of our own officers (especially those in military employ with leisure) might thoroughly investigate the guilt or innocence of this mosquito in relation to the many fever-puzzles we come across in this country.

In his fourth study, Professor Goeldi gives a valuable summary on the relation of this mosquito to yellow fever.

One would have liked to learn more from him as to hibernation, vitality of eggs and larvæ, powers of flight, &c. But a future contribution is promised.

To any one beginning mosquito work, this book should be most valuable. Although it is written in Portuguese, the figures and plates are easily read, and even the text can be made out without much difficulty.

An Introduction to Pharmacognosy—By SMITH ELY JELLIFFE, M.D., Ph.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in Columbia University (College of Physicians and Surgeons), New York. Fully illustrated. 265 pages. Publishers, Messrs W. B. Saunders & Co., New York & London.

PHARMACOGNOSY is the study of drugs in their crude condition, being, therefore, one of the branches of pharmacology.

It includes a knowledge of drugs with reference to botany and chemistry, if of vegetable origin, or of their zoology and chemistry, if derived from the animal kingdom. The substances usually coming within the domain of pharmacognosy are of organic origin. The pharmacognostical study of plant-drugs includes a study of the habitat and general character of the plant from which the drug is derived, its place in the botanical system, the organ or organs of the plant made use of, their gross and minute structure and the chemistry of their constituents.

This Introduction follows the lines already laid down by European authors on the subject, such as the works produced in Germany by Moeller, Meyer, Varmé and the monumental work of Plaucon and Collier. Greenish of London gave to English pharmacists a guide similar in general features to this volume now published.

Special emphasis has been laid on the microscopic appearance of drugs, and many illustrations from microscopic slides are produced to exemplify the text.

The drugs studied in detail have been carefully selected as being most typical of general drug structure. The whole work is of a most interesting nature and will appeal very much to those who have the time to acquire and the taste for more than a mere superficial knowledge of drugs in their crude condition.

The volume is a handsome one and produced by the publishers in their accustomed excellent manner.

Human Physiology prepared with special reference to Students of Medicine—By

JOSEPH H. RAYMOND, A.M., M.D., Professor of Physiology and Hygiene in the Long Island College Hospital, New York City. Third Edition, revised. 444 Illustrations, some in colour and 4 full page Lithographic Plates. Pages 687. Publishers, Messrs W. B. Saunders & Co., Philadelphia and London.

THE new revised edition of this work on physiology just published has been altered to a considerable extent in accordance with the result of recent researches in almost all branches of the subject. Many new elements are introduced—amongst the most important being the valuable contribution of Chittenden under the title of "Physiological Economy of Nutrition." The results of the experiments therein reported form the most important additions to the physiology of nutrition made during recent years. Experiments were made with three classes of men—professional men, soldiers and college athletes—the results obtained tend to show that in all classes the generally accepted scale of dietaries is much too generous, and that we consume from one-half to two-thirds too much nitrogen. He further believes that any excess of food above what is needed imposes an unnecessary strain on the organism especially on

the excretory organs and conduces to disease especially gout and rheumatism (See above p. 62).

Another important matter fairly fully discussed is the "nutritive value of alcohol," the text-matter being based on the work of Atwater and others. Other topics more fully elaborated or introduced for the first time are—

Vegetarianism, the Identity of Human and Bovine Tuberculosis, Experiments of Cannon on the movements of the Stomach and Intestines by means of the X-Rays, Hæmolysis and Bacteriolysis, Effects of Cold on Bacteria with special reference to the purification of water by freezing and pointing out the danger of ice made from impure or contaminated sources.

Many of these and other matters introduced in the text are not subjects one expects to find discussed in works on physiology, but they are all of great importance, and we welcome them not only for their intrinsic value, but also for the clear and lucid manner in which they are discussed.

The author has dealt very fully with—diet, nutrition, metabolism, going into the dietaries of the different countries in a very thorough manner. These sections of the book are, in our opinion, by far the most valuable, yet even in these we were surprised to see little reference to the work done by Pawlow, Starling and Bayliss on the intestinal juices, showing the interdependence of the different secretions of the alimentary canal on each other. We notice the old method of estimation of the amount of blood adhered to, surely its fallacies have been pointed out and the method devised by Haldane and Lorrain Smith is surely worthy of notice. A similar remark may be made regarding the method given in the text of the estimation of hæmoglobin, when the more accurate method of estimation by Haldane's modification of Gower's instrument is omitted. The physiology of the circulation and respiration is not sufficiently dealt with, in fact little more than an outline is given, whereas the section on the larynx, phonation and voice production is very exhaustive and is one of the gems in a series of most interesting sections. The last point we need refer to is the adherence to the old localisation of the so-called motor centres of the cerebral cortex.

Like most books this one is uneven in merit, some parts could not be better, such as nutrition, articles on alcohol, Cannon's experiments and voice production, and in our opinion the excellence of these do more than counter-balance the minor defects we have pointed out.

It is a book of more value to the practising physician than many of the books at present to be had on physiology, and we have no hesitation in recommending it as a most instructive, interesting and readable volume. It is exceedingly well illustrated and is very handsomely produced by the Publishers.

Practical Sanitary Science—By D. SOMMERVILLE, M.D. London. Baillie, Tindall and Cox, 1906

THIS is an admirable book. It gives in the briefest and clearest way a summary of a course of lecture-demonstrations, the same as given by Dr. Somerville at the D.P.H. class at the Laboratory of King's College, London.

The book consists of 25 chapters, the first fourteen of which are devoted to water examination, the next to sewage effluents, then to the analysis of soil, air, milk, butter, meat, &c. Then follows a useful chapter on disinfectants, on the cereals, on alcohol and on preserved foods. There is an appendix of over 50 pages giving details as to the preparation of chemical reagents, and some useful chemical notes and texts.

We have been most favourably impressed by this book, it is well illustrated and well printed, and we know of no more practical or trustworthy guide to a laboratory course of hygiene, and we commend it to all our readers who may contemplate using their study-leave in preparation for that most useful qualification, the Diploma in Public Health.

ANNUAL REPORTS

JAIPUR MEDICAL INSTITUTIONS

THE report on the Jaipur Medical Institutions for 1904 only reached our office late in November 1905, so that its late issue deprives it of some of its interest. The delay was due to changes in the tabular statements and returns.

As usual the records of meteorological observations started by Colonel J. H. Hendley, I.M.S., figures largely in the report. The rainfall at Jaipur was 24 inches. The report is submitted by Lieutenant-Colonel P. Durrell Pank, I.M.S. A special note on plague is given on page 18 of the report. Evacuation which was done by the inhabitants of villages on their own initiative proved the best means of meeting the epidemic. Inspection stations were instituted. Dessication was tried in many houses, but the report is somewhat restrained in its estimation of the value of this means of destroying the plague germ.

As usual there was much good surgery done, e.g., 339 operations for cataract were done in the Mayo Hospital alone, and 233 in other hospitals, 50 operations for vesical calculus (41 by litholapaxy) with 48 good results, and one remaining under treatment. A large number of abdominal operations were also done, including six hernias, Bassini's operation, five cured, one remaining.

The following note by Lieutenant Colonel Pank gives details of the stone cases—

"Forty three cases of vesical calculus removed by litholapaxy made excellent and quick recoveries (*vide attached statement*). The largest stone removed by this operation weighed 570 grains, in a boy of one year of age, and the average stay in hospital for each case was 5.07 days.

Case No. 43, a Hindu boy of 15, was admitted in a very bad health with severe cystitis, he was under operation for 15 minutes, and his stone was very small. In using the evacuator his bladder was injured, and he died suddenly on the second day after the operation. At the *post mortem* examination bloody urine was found in the abdominal cavity, and there was extravasation of urine in the tissues, though no perforation could be found in the bladder.

The two cases operated on by lithotomy were unfit for any other operation.

Four cases of vesical stone treated by perineal lithotomy were all successful and gave excellent results, the largest stone weighed 4,495 grains (10½ ounces), and the average stay in hospital was 32.75 days.

The case of Hussain Khan, aged 50, was a formidable one, his stone weighed 10½ ounces, and not even a giant lithotrite could grasp it, luckily a Thompson's lithotomy crushing forceps just held it and broke it up, he was 75 minutes under operation and remained in hospital for 71 days, making a good recovery."

We give in another place (p. 65) an analysis of a table compiled by Lieutenant-Colonel Pank of these litholapaxy operations.

BOMBAY HOSPITALS REPORT FOR 1904.

THIS report, though submitted to Government by Surgeon General Gicany on 27th July 1905, was not considered by Government till October, and only reached our table late in November 1905. As in other cases much time was lost in getting revised statements in the new forms. At the end of the year there were 662 hospitals and dispensaries open and working. Considerably over 2 million patients attended about 48,000 of which were in-door patients. The number of beds available was 5,010, and the daily average number in 1904 occupied was 2,680.

In the year 1904, over 78,000 surgical operations were done, among which we may mention 926 amputations, 143 iridectomies, 73 sclerectomies, 1,049 cataracts, 103 eviscerations of eyeballs, 22 trephinnings (10 deaths), laparotomy 60 cases (28 deaths), hernia, radical cure, 62 cases (8 deaths), strangulated hernia 43 cases (11 deaths), 286 cases of liver abscess, 82 deaths, or for the three years 747 cases of liver abscess with a death rate of 28 per cent, which, we think is a low rate, as about 60 per cent. is the usual rate for all cases admitted into public hospitals, in all stages of the disease. There were also 956 litholapaxies, 415 lithotomies, and 77 lithotrities.

NORTH WESTERN FRONTIER PROVINCE REPORT, 1904-05

THE year was one of unrest which, however, did not end in serious trouble. There was an increased attendance in the 39 dispensaries of the province. On the subject of operations the report makes the following pertinent remarks—

"22,867 principal and 28 secondary operations were performed as against 22,913 and 113 in 1903. The slight decrease is said to be due to the frequent transfers of Medical Officers. Patients almost invariably prefer to be operated on by European doctors, but are naturally chary of entrusting themselves even to these until they have some knowledge of them whether by experience or reputation. Sufferers will often come into hospital asking for the services of a particular officer by name, and, finding that he has been transferred, will go away without treatment rather than submit themselves to a stranger."

An outbreak of small pox led to an increase of vaccination among the Chitrahis.

The daily average number of prisoners in the jails of this province was 1,396, and there was considerable overcrowding at times, though the evil was reduced to harmless proportions as the death rate fell from 15.6 per mille to only 14.6.

Current Literature.

MEDICINE I

Major D. G. Marshall, I.M.S., lecturer in tropical diseases in the School of Medicine of the Royal Colleges, Edinburgh, has an interesting series of notes on tropical diseases in the October number of the *Edinburgh Medical Journal*. He describes the method of early detection and removal of the guinea worm while still free in the subcutaneous tissues, and before any attachment to the skin has been formed.

Detection can be made by carefully inspecting and palpating the skin, palpation being carried out by gently stroking with the fingers the skin surface. The presence of the worm imparts the feeling as though a piece of soft string was lying under the skin. Removal is very simple, a slight incision over the worm and the worm drawn out with a pair of dissecting forceps. There is generally only trifling resistance and a worm two or three feet long can be removed in a few seconds.

Major Marshall gives a short account also of Dr. Zammit's discovery of the probable method of propagation of *Malta fever* just published in the third report of the Mediterranean Fever Commission. Dr. Zammit by chance examined the blood of some goats (the chief milk supply in Malta is derived from these animals), and was surprised to find it gave a positive and very marked reaction with the *Micrococcus melitensis*. Further investigation showed that the milk of a large proportion of goats contained the micrococcus often in enormous numbers. The further work by the Commission apparently proves that the disease affects goats and is spread by the milk supplied by them.

In the same number of the *Edinburgh Journal* there is a very instructive compilation of the recent work done on the *Etiology of Syphilis*. The evidence brought forward goes far to absolutely confirm the discovery of Schandinn and Hoffmann that the spirochæta pallida is the causal agent. Babes and Pansa (*Berl Klin Wochenschr*, July 1905) made smears from most of the viscera of an infant four weeks old, who died from hæmorrhagic congenital syphilis, and detected the *S. pallida* in the liver and spleen. It has also been found in the blood from the heart, smears from lungs, glands and abundantly in the supra renal glands in congenital syphilis, also in the cerebro spinal fluid.

Almost the only strong opponent of Schandinn's theory is Thesing who makes the following criticisms of his work (1) The spirochæta is a bacterium, not a protozoon because it has neither nucleus, flagellæ nor an undulatory membrane. (2) The alleged specific differences between *S. pallida* and *S. refringens* are inadequate. (3) Schandinn's specimens showed so many other organisms as to suggest extraneous contamination.

Staining method—Giemsa's most recent and most approved method is as follows (*Deutsche and Wochenschr*, June 1905).

Azur II, eosin 3 grains, azur II, 0.8 grms, Merk's chemically pure glycerine, 250 grms, methyl alcohol 250 grms.

This is manufactured by Grubeer and is used thus—

Fix the air dried smear for twenty minutes in absolute alcohol, dry with filter paper. Drop the stain into distilled water, 1 drop to 1 cm shaking the while. At once pour the dilute stain over the preparation and stain for 10–15 mins, wash in running water, dry and mount.

Stepp (*Therap Monatsh*, 1904) claims that fluoroform is a drug of the utmost value in the treatment of **Whooping-Cough**. He treated twenty-two consecutive cases with very marked success. The drug is tasteless, colourless, and apparently harmless, but expensive, however it would be well worth a trial in cases of whooping cough.

The serum treatment of Exophthalmic goitre—Morbus has had good results by treatment with the serum of sheep from which the thyroid glands had been extracted six weeks before bleeding. The serum was given by the mouth in wine, the goitre diminished and constitutional symptoms were ameliorated. One very bad case in a young man was practically cured and all his cases were improved by the treatment (*Amer Jour of the Med Sciences*, September 1905).

Negative value of Kering's sign (*Amer Jour of Med Sciences*, August). Wilson examined 120 cases of all kinds for the purpose of determining the clinical value of Kering's sign. As a result he concludes that Kering's sign is, by no means, a positive indication of either meningæ, brain or cord, involvement, but that when present in association with other signs of meningitis it may be looked on as confirmatory to a high degree. It persists in the majority of cases far into convalescence, and is usually one of the last signs to disappear (*The Jour of the Amer Med Assoc*).

Treatment of arterio sclerosis. (*Australasian Medical Gazette*, July).—The systematic employment of hot baths is vaunted by Hirschfeld as a satisfactory treatment of arterio sclerosis. Its effects are—

- 1 It alters the distribution of the blood pressure unloading the internal organs by increasing the vascularity of the skin, hence it affords prompt relief in many cases of pain associated with gout that frequent source of arterio sclerosis.

- 2 It increases combustion.

- 3 It increases the elimination of waste products.

One may safely begin with a temperature of 102 degrees, time of immersion should not be less than ten minutes. If the left heart is not vigorous, as determined by the quality and loudness of the sounds, the hot bath must be used with caution.

Endocarditis in Tuberculosis.—H T Marshall, M.D. (*Bulletin of the John Hopkins' Hospital*) is the author of a most instructive article on this subject. He divides it into three main classes—

- i Endocarditis preceding tuberculosis, giving results and quoting many authorities to show that Rokitsky's doctrine of the immunity of the patient suffering from endocarditis from tuberculosis cannot any longer be accepted.
- ii Endocarditis arising in tubercular patients but not produced by the tubercle bacillus.
- iii Endocarditis resulting directly or indirectly from the action of the tubercle bacillus. This form he groups under the following headings—
 - a Miliary tuberculosis.
 - b True tuberculous endocarditis.
 - c Tuberculous cardiac thrombi.
 - d Tuberculous endocarditis from extension of a myocardial tuberculosis.
 - e Tonic endocarditis of tuberculous origin.

The opinion prevailed up to quite recent times, in spite of the recorded cases to the contrary by isolated observers, that tuberculosis does not attack the walls of the heart nor blood vessels. This view is no longer tenable. Marshall's article will well repay careful perusal.

D M'C

Correspondence.

ENLARGEMENT OF THE PROSTATE IN NATIVES OF INDIA

To the Editor of "INDIAN MEDICAL GAZETTE"

SIR,—With reference to the subject of "Enlarged Prostate in the Natives of India," I am glad to note that others are able to confirm my observation made in an article on "Enlarged Prostate" published in the "*Indian Medical Gazette*" of Feb 1904, in which I reported six cases, five of which were successfully operated.

Since the publication of that article, I have examined and treated a considerable number of patients suffering from this disease. Since my return from furlough in July last, I have found the prostate enlarged in, at least a dozen patients who have attended our dispensary complaining of frequent, painful, or difficult micturition.

Few patients with moderate enlargement are willing to enter a hospital, and it is in dispensary practice that we observe most of these cases. Only patients with complete retention seek admission as in-patients and not a few of these, I believe, die unrelieved in remote villages.

I have recently done my first case of perineal prostatectomy. The patient, an old feeble patient of about 60 years, was able to leave the hospital in three weeks with his perineal wound closed and having complete control over his bladder. The operation in this case was completed in less than 15 minutes with very little loss of blood, and the entire operative field kept in full view by use of a Young's prostatic tractor.

Where the middle lobe is not enlarged, I am inclined to favour the perineal operation as the operation of choice. This appears to be the consensus of surgical opinion in the United States, where I have recently had opportunity to study the work of a number of surgeons of large experience in prostatic surgery. I mean to make a further trial of this method in suitable cases.

Yours, etc,

W J WANLESS, M D

EXAMINING FOR STONE IN THE BLADDER

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The standard teaching re examining a patient for stone in the bladder is to distend the bladder with fluid and to pass a sound. If the stone cannot be thus felt with a sound the inference is that there is no stone—a very erroneous inference. If a Bigelow's evacuating apparatus be set to work with a large catheter a small stone will almost certainly click against the catheter in an audible manner, though the sound may have failed to detect it. It is absurd to infer that as no stone

has been felt in an empty bladder with a sound that there is no stone. By any process of examining for stone the bladder must be distended with fluid. In children in whom we cannot pass large instruments the current through the small evacuating catheter is so weak that we cannot depend on the click of the stone against it. I have frequently observed that when the above measures were faithfully tried and failed to give evidence of a stone in children, that on passing a small lithotrite a small stone was at once caught. A couple of years ago when talking over stone matters with Keegan it was interesting to find that he many years ago made exactly the same observation.

In writing this paper I wish to invite attention to this heretofore unpublished observation, viz., to the use of a small lithotrite the most delicate and the most business like way of detecting small stones in children. I think if it be adopted, there will be very few cases with an unobserved stone in the bladder sent away only to come back later on when the stone has grown big enough to be detected by a sound.

Yours, &c,
HENRY SMITH, M.D.,
Major, I.M.S.

JULLUNDAR,)
January, 1906)

LEISHMAN DONOVAN INFECTION IN EUROPEANS

To the Editor of "INDIAN MEDICAL GAZETTE"

SIR—Major Childs paper in the December issue of the Gazette might induce the belief that the Leishman Donovan disease rarely affects Europeans. No doubt, other cases have occurred in Bombay as well as elsewhere amongst that class prior to the recognition of the condition as a distinct pathological entity. For instance it is often mistaken for a typical or prolonged enteric fever (paratyphoid) owing to the similarity of their symptoms.

In Madras several cases have been met with, in children as well as adults, especially from the quarter of that city known as the 'Military Ordnance Lines,' a locality near Fort St George.

In regard to treatment, I beg to draw attention to the value of carbolic acid which should be given for a prolonged period and in gradually increasing doses, to the utmost limits of tolerance. Patients have taken as much as three drachms daily with ultimately beneficial results and without any drawback, such as carboloria, occurring.

A striking case (which is worthy of separate reproduction), in which, recovery from a condition quite as grave as that recorded in Major Childs patient will be found in the Report of the Madras General Hospital (1st Physician's Wards) for 1904, reviewed in your columns in the November issue, but your Reviewer was chiefly attracted by the surgical work reported, as he overlooked the medical side of the Report, except that he noticed at length some speculative matter relative to a possible genesis of enteric fever.

In regard to other drugs, I have given a trial to arsenite of soda injected subcutaneously in 1% solution, commencing with 5 minims daily and gradually increasing the quantity to 100 minims in one injection. In the case which received the latter dose the drug did not appear to exercise any decisive effect on the progress of the disease (which terminated fatally about 2 months later), and its use was therefore abandoned, another case was relieved though not cured by similar treatment.

It should be added that spontaneous recovery has been known to happen even after the occurrence of cancerous (a not uncommon complication in advanced stages). The case I refer to was that of a Eurasian girl aged 13, but a relapse may be anticipated as long as the patient remains in the locality where the disease was contracted.

Yours, &c,
W. A. LEE,
Lt Col., I.M.S.

20th January, 1906

Service Notes.

The following regulations for admission to the Indian Medical Service are published for information in *Gazette of India*, 23rd December 1905.

1 The regulations are those in force at the present time. They are subject to any alterations that may be determined on.

2. Candidates must be natural born subjects of His Majesty, of European or East Indian descent, between 21 and 28 years of age at the date of the examination, of sound bodily health, and, in the opinion of the Secretary of State for India in Council, in all respects suitable to hold commissions in the Indian Medical Service. They may be

married or unmarried. They must possess, under the Medical Acts in force at the time of their appointment, a registrable qualification to practise both medicine and surgery in Great Britain and Ireland.

[N.B.—In the case of Natives of India it will be necessary for a candidate to obtain a certificate of age and nationality issued under G. G. O. No 477, dated 22nd May 1903, Military (Medical) Department, and signed, should he be a resident in British India, by the Secretary to Government of the Province, or the Commissioner of the Division within which his family resides, or, should he reside in a Native State, by the highest Political Officer accredited to the State in which his family resides.]

3 They must subscribe and send in to the Military Secretary, India Office, Westminster, so as to reach that address by the date fixed in the advertisement of the examination, a declaration according to the annexed form.

4 This declaration must be accompanied by the following documents—

- (a) Proof of age either by Registrar General's certificate, or, where such certificate is unattainable, by the Candidate's own statutory declaration form of which can be obtained at the India Office, supported, if required by the Secretary of State by such evidence as he may consider satisfactory. A certificate of baptism which does not afford proof of age will be useless.
- (b) A recommendation from some person of standing in society—not a member of his own family—to the effect that he is of regular and steady habits and likely in every respect to prove creditable to the service if admitted, and a certificate of moral character from a magistrate, or a minister of the religious denomination to which the candidate belongs.
- (c) A certificate of having attended a course of instruction for not less than three months at an ophthalmic hospital, or the ophthalmic department of a general hospital, which course shall include instruction in the errors of refraction.
- (d) Some evidence of having obtained a registrable qualification.
- (e) In the case of Natives of India or others educated in this country, in addition to the certificates referred to in paragraph 2 and paragraph 4 (b), (c) and (d) the candidate will be required to produce a certificate signed by the Director General, Indian Medical Service, that he is a suitable person to hold a commission in the Indian Medical Service. Candidates should apply for certificates through the Principal of the Medical College at which they have studied.

5 The Secretary of State for India reserves the right of deciding whether the candidate may be allowed to compete for a commission in His Majesty's Indian Medical Service.

6 The physical fitness of each candidate will be determined by a Board of Medical Officers, who are required to certify that his vision is sufficiently good to enable him to pass the tests laid down by the Regulations.

Every candidate must also be free from all organic disease and from constitutional weakness, or other disability likely to unfit him for military service in India.

7 On proving possession of the foregoing qualifications, the candidate will be examined by the Examining Board in the following subjects, and the highest number of marks obtainable will be distributed as follows—

	Marks
1 Medicine, including Therapeutics	1,200
2 Surgery, including diseases of the eye	1,200
3 Applied Anatomy and Physiology	600
4 Pathology and Bacteriology	900
5 Midwifery and Diseases of Women and Children	600
6 Chemistry, Pharmacy, and either Botany or Zoology	600

N.B.—The examination in medicine and surgery will be in part practical, and will include operations on the dead.

* These are as follows—

(1) If a candidate can read D=6 at a distance of 20 feet, and D=0.6 at any distance selected by himself, with each eye without glasses, he will be considered Fir.

(2) If a candidate can only read D=24 at 20 feet with each eye without glasses, his visual deficiency being due to faulty refraction which can be corrected by glasses which enable him to read D=6 at 20 feet with one eye, and D=12 at the same distance with the other eye, and can also read D=0.8 with each eye without glasses at any distance selected by himself, he will be considered Fir.

(3) If a candidate cannot read D=24 at 20 feet with each eye without glasses, notwithstanding he can read D=0.8, he will be considered Unfit.

N.B.—Snellen's test types will be used for determining the acuteness of vision. Squin's inability to distinguish the principal colours, or any morbid condition subject to the risk of aggravation or recurrence in either eye, may cause the rejection of a candidate.

† Candidates who pass the physical examination will be required to pay a fee of £1, before being permitted to compete.

body, the application of surgical apparatus, and the examination of medical and surgical patients at the bedside. The examination in chemistry will be limited to the elements of the science, and to its application to medicine, pharmacy and practical hygiene.

No candidate shall be considered eligible who shall not have obtained at least *one third* of the marks obtainable in each of the above subjects and *one half* of the aggregate marks for all the subjects.

8 After passing this examination the successful candidates will be required to attend one entire course of practical instruction at the Army Medical School and elsewhere, as may be decided, in—

- (1) Hygiene
- (2) Military and Tropical Medicine
- (3) Military Surgery
- (4) Pathology of diseases and injuries incidental to Military and Tropical Service

This course will be of not less than four months' duration.

9 The candidate's commission as Lieutenant will bear the date on which the course of instruction commences, but his rank will not be gazetted until he has passed the final examination.

10 During this period of instruction each candidate will receive an allowance of 14s per diem, with quarters, or, when quarters are not provided, with the usual allowances of a subaltern in lieu thereof, to cover all costs of maintenance, and he will be required to provide himself with uniform (*viz.*, the regulation undress uniform and the mess dress of a Lieutenant of the Indian Medical Service, as described in Indian Army Regulations, Vol. VII, with Sam Browne belt, but without the sword).

A Lieutenant on probation who is granted sick leave before the completion of his course of instruction and final admission to the Service will receive furlough pay at the rate of 10s 6d a day for the period of his sick leave.

11 Candidates will be required to conform to such rules of discipline as may from time to time be laid down.

12 At the conclusion of the course, candidates will be required to pass an examination in the subjects taught during the course of instruction.

13 A Lieutenant who, before the expiry of one month from the date of passing his final examination, furnishes proof of his election to a Resident Appointment at a recognised civil hospital may be seconded for a period not exceeding one year from the date on which he takes up such appointment, provided that he joins it within three months of passing his final examination, and that he holds himself in readiness to sail for India within fourteen days of the termination of the appointment. While seconded he will receive no pay from Indian funds, but his service towards promotion, increase of pay, and pension will reckon from the date on which the course of instruction for Lieutenant on probation commences.

14 Before the commission of a Lieutenant on probation is confirmed he must be registered under the Medical Acts in force at the time of his appointment.

15 Officers appointed to the Indian Medical Service will be placed on one list, their position on it being determined by the combined results of the preliminary and final examinations, and, so far as the requirements of the Service will permit, they will have the choice of Commands in India (*i.e.*, Eastern, Northern and Western Commands, and Burma or Secunderabad Divisions), according to their position on that list.

Though ordinarily employed within the limits of the Command to which they may have been posted they will be liable to employment elsewhere according to the exigencies of the Service.

16 No candidate will be permitted to compete more than three times.

Examination for admission to the Service usually take place twice in the year, in January and July.

NB—The exact date of the next examination and the number of appointments will be notified in the newspapers in due course.

Candidates cannot be supplied with copies of past examination papers.

DECLARATION AND SCHEDULE OF QUALIFICATIONS

To be filled up by Candidates

Christian and Sur name at full length

1. ————— Years of Age in ————— last, *vide accom-*
panying Certificate, a candidate for employment
 in His Majesty's Indian Medical Service, do hereby
 attest my readiness to engage for that Service, and
 to proceed on duty immediately on being gazetted.

I declare that I labour under no mental or Constitutional Disease, nor any imperfection or disability that can interfere

with the most efficient discharge of the Duties of a Medical Officer

The Dates of Graduations and the Universities or Colleges are to be stated

I received my Medical Education and completed my course as Medical Student at*
**Five Colleges and Medical Schools in full*
 I have the Degree of A M or A B from the
 I have the Degree of M D or M B from the
 I have the following registrable qualifications —

(Signature at full length)

(Date)

(Place of Residence)

Candidates are requested to state whether they offer Botany or Zoology for examination.

NB—This paper, when filled up, is to be returned, under cover, to

The Military Secretary,
 India Office,
 London,
 S W,

THE following examination papers which we reproduce from the *Journal, R. A. M. C.*, will be interesting to our readers. At the end are seen the questions asked at the Examination for promotion of Lieutenants, R. A. M. C., which may not be very different from what is required for Lieutenants I M S.

Will some Lieutenant, I M S., who has passed this promotion examination oblige our readers with a copy of the questions asked and some account of the Examination?

EXAMINATION OF LIEUTENANTS OF THE ROYAL ARMY MEDICAL CORPS AND THE INDIAN MEDICAL SERVICE AT END OF SESSION, SEPTEMBER AND OCTOBER, 1905

Practical Hygiene—October 27, 1905 From 10 A M to 1 P M

(1) The following analyses have been given by water samples. Give an opinion as to their fitness or otherwise for a permanent supply of drinking water to proposed camps, stating your reasons. [Not reproduced—Ed.]

(2) Determine the amount of total hardness in the water sample before you, expressing the result as lime (CaO) in parts per million.

(3) Estimate the fat in the milk sample by Werner Schmidt's method. The specific gravity of the milk has been found to be 1.029. Give an opinion as to the genuineness of the sample, with reasons. Richmond rules are available.

Note—The strength of the soap solution is given on the blackboard.

Military Medicine (Tropical Diseases)—(Optional for Lieutenants Royal Army Medical Corps) Friday, October 27, 1905 From 2 30 P M till 5 30 P M

[NB—The first three questions must be answered, and one only of the last two.]

1 What departures from the classical type of enteric fever are you likely to meet abroad, mentioning in each case the features on which you would rely in making your diagnosis?

2 (a) Give a general outline of the whole treatment you would adopt in an uncomplicated case of enteric fever.

(b) What are the most common complications met with in enteric fever, and give briefly the treatment in each?

3 (a) Describe the clinical features of the various forms of dysentery met with.

(b) Give a detailed account of the treatment you would adopt in any one form which you may select.

4 (a) Discuss the probable channels of propagation of Malta fever.

(b) Mention any diseases with which it may be confounded, and state on what points you would base your diagnosis.

5 (a) What are the symptoms of Bilharzia disease, and what diseases may it be mistaken for?

(b) Name the varieties of *Filaria sanguinis*, and describe the results of their presence in the body.

Military Surgery—Monday, October 30th, 1905 From 10 A M to 1 P M

(1) What are the forces acting on a rifle bullet after it leaves the muzzle of the rifle, and how do they affect its flight?

(2) Describe the injuries to blood-vessels caused by the modern rifle bullet, enumerate the clinical conditions to which they give rise, and give briefly the treatment of each.

(3) What are the various forms of gunshot injury met with in the knee joint? Give the symptoms and treatment of each.

(4) What circumstances determine the degree of injury to the spinal cord in gunshot wounds of the spine? Give the treatment of these cases, and discuss briefly the question of operation.

Hygiene—(Written) October 30, 1905 From 2.30 to 5.30 P.M.

(1) Explain the terms "shallow well," "deep well," and "artesian well." Discuss the suitability of water, derived from these sources for potable and domestic purposes, pointing out in respect of each case the sanitary precautions necessary for safeguarding the purity of the water.

(2) Discuss the theory of dietaries and indicate what evidence modern research affords in the direction of some modification being made in what has hitherto been orthodox teaching on this subject. Give a brief account of how the British soldier is fed at home.

(3) Describe the best arrangement for storing ashes, garbage, and domestic refuse in barracks. Give your views as to administrative detail for the efficient removal and ultimate disposal of this material.

(4) What is the sanitary significance of the presence of the *B. enteritidis sporogenes* in a water supply? Explain how you would attempt to detect the presence of this micro-organism in a water sample, and give in detail its cultural and morphological features, pointing out how it is to be distinguished from other micro-organisms with which it is likely to be confused.

(5) Explain your views as to the sanitary value of aerial disinfection. What is formaldehyde and what value has it as a disinfectant? Give details as to any two methods by which efficient disinfection of a room can be carried out by means of formaldehyde.

Military Medical Administration (Optional for Lieutenants, Royal Army Medical Corps)—Tuesday, October 31, 1905 From 10 A.M. to 1 P.M. (time allowed three hours)

(1) How is the Army governed? Who are empowered to administer justice?

(2) Of what does the Army Medical Service consist? What are briefly its functions?

(3) What is the process of physical examination of an intending recruit? What apparatus and documents has the Medical Officer for use and reference in the recruiting depot?

(4) Describe the general scheme of medical aid to wounded in war with a diagram.

(5) What several branches of the Army deal with the following—

Transport, weapons, buildings, washing of linen, travelling claims, barrack furniture, ammunition, rations?

JUNIOR CLASS

Pathology—Practical Examination, Saturday, October 28th, 1905 From 10 A.M. to 1 P.M.

(1) Examine the bacterial culture with which you are provided and write a short description of the results of your examination, leave your stained films beside your microscope, labelled with your examination number and the staining method employed.

(2) Stain and mount the paraffin section so as to demonstrate the Gram staining micro-organisms contained in it to the best advantage. Leave the section in focus under your oil immersion lens, and record in your paper your opinion—

(a) As to the nature of the tissues

(b) As to the probable nature of the micro-organisms

(3) Oral examination as to specimens displayed under the microscope.

Pathology—Written Examination, Tuesday, October 31st, 1905 From 2.30 P.M. to 5.30 P.M.

(1) What methods would you employ in the sterilisation of the following articles—

(a) The instruments required for an aseptic post mortem?

(b) Test tubes and Petri dishes?

(c) Blood serum for cultural purposes?

Describe shortly any special forms of apparatus used in these processes.

(2) Give a short description of the principal pathogenic diplococci and of the morbid conditions to which they give rise. By what points would you differentiate these micro-organisms one from the other?

(3) What is "Pfeiffer's phenomenon," and how would you make use of it in the identification of a vibrio suspected to be that of Asiatic cholera?

(4) How would you distinguish the "Rosettes" of quartan, benign tertian and malignant tertian from one another, in what situations respectively, are they found in the greatest numbers?

(5) Define the following expressions—

(a) Facultative anaerobe

(b) Symbiosis.

(c) Negative chemotaxis

(d) Sporozoite

(e) Polyvalent serum

EXAMINATION OF MAJORS R.A.M.C., FOR PROMOTION, OCTOBER, 1905—INDIA

Sanitation and Epidemiology—Time allowed three hours

Sanitation—(1) You are in charge of a troopship from Bombay to Durban. Three days out of Bombay cholera

appears among the troops on board. The emergency requiring the presence of troops in South Africa is such that it does not admit of the ship putting back to Bombay. What course of action would you adopt? The Officer Commanding Troops gives you a free hand in all matters not relating to the actual management of the ship. (There is no port of call laid down for the trip, but on the eighth day, Mahé in the Seychelles will be 250 miles distant.)

(2) "Tents are unfavourable to health. A soldier is best when he bivouacs." ("Napoleon's Maxims," No. 101.) Do you agree with this remark, or not? Give your reasons.

(3) You are Principal Medical Officer of a force ordered suddenly on the march to meet an emergency in a sub-tropical climate in the month of June, north of the Equator. Your advice is asked as to hours of marching, length of halts and the hygiene of the march generally. Give your recommendations and your reasons for them. (The mean maximum shade temperature is for that time of the year 107°F, the mean minimum, 82°F, the total length of the march is 60 miles, and the stages are as follows: 10, 15, 9, 18 and 8 miles respectively. The country is badly watered and wells are only to be found at the camp grounds. The moon is three days short of the full on the first day of the march.) (Note—It is not necessary to touch on questions of camp conservancy or on any points not actually connected with the time spent on the march.)

(4) A certain station is supplied with its drinking water from deep wells sunk in trap rock. The station occupies the highest point of a plateau, formed of trap rock, several hundred miles in extent. The supply from the wells is good in quality but extremely unreliable in quantity, and the country is liable to frequent droughts. At a distance of two miles from the station is a large artificial lake which it is possible to keep permanently full, even in the severest drought, by means of a canal coming from a river, which runs ten miles away in a direction away from the station. The lake is eleven miles in circumference, and averages twenty feet in depth when full. It is liable to contamination from sources situated on the banks of the canal, not under the control of the military authorities, who can, however, control the foreshore of the lake itself. There are two proposals before you: one to sink more wells, the other to use the lake, controlling the conservancy thereof as far as possible and constructing a series of settling tanks and filter beds. Which would you feel inclined to adopt and why?

Epidemiology—(5) What are your views as to the part played by latrine infection in the spread of enteric fever? Is this method of infection favoured or otherwise by a dry earth system of conservancy? Give reasons for your opinion, and state how you would propose to deal with the dangers, if any entailed by this system.

(6) What are the chief forms of epidemic dysentery? What are your views as to its causation and persistence in epidemic form in armies in the field?

Army Medical Organisation—Time allowed three hours

(1) What are the duties of a Principal Medical Officer in time of peace, in connection with the administration and inspection of hospitals, and arrangements for medical attendance?

(2) A soldier of the Royal Army Medical Corps is desirous of qualifying as a compounder of medicine. What corps qualifications must he fulfil? Describe the special training and examinations he must undergo. In lieu of latter are any civilian qualifications accepted?

(3) Compare the total number of officers, Royal Army Medical Corps, required for an Infantry Division in the field, under the latest regulations, with the old establishment. Classify them as (a) for staff duties, (b) attached to regimental units, (c) as doing duty with medical units.

(4) What are the arrangements on active service for depots of medical stores? Give details of *Personnel*, and of books and records required to be kept.

Special Subject (Only one question to be answered)—Time allowed three hours

Reports on the Nile and Suakin Expeditionary Forces 1884-85

(1) Detail arrangements made for conveying wounded from Tamai to Suakin (after the battle at the former place) on March 14 and 15, 1884.

State briefly the course of events during the action of El Teh on February 29, 1904, and the special difficulties entailed on the medical services, by the formation and tactics adopted.

What were the conclusions arrived at as to the best form of tent for hospital use during the Suakin Expedition of 1885?

Medical Organisation of a Foreign Power

(2) Detail the medical units mobilised for an Infantry Division in the Russian Army.

What are the arrangements in the Russian Army for replacing medical stores in the field?

Compare these with the corresponding units and arrangements in the British Service.

[If any special Foreign Service has been selected by the candidate the above question may be taken as applied to that special service.]

EXAMINATION OF LIEUTENANTS, R A M C, FOR PROMOTION INDIA—OCTOBER, 1905

Subject (h—i) —Time allowed three hours

(1) What are the duties of a steward in a hospital in which there is no Quartermaster employed?

(2) What are the general duties of a warrant officer employed as Wardmaster?

(3) How would you check the expenditure of wines and malt liquors in the military hospital?

(4) On the death of a patient in hospital, state the disposal of kit and valuables

Subject —(h—m) —Time allowed three hours

(1) What regulations are in force for the detection and prevention of venereal diseases in the Army?

(2) What are the qualifications required by a Corporal in the Royal Army Medical Corps for promotion to the rank of Sergeant?

(3) What are the duties of an officer in medical charge of a unit engaged in active operations in the field?

(4) What prophylactic measures against malarial fevers would you put in force to maintain the efficiency of a unit?

THE following notification appears in the *Gazette of India*, dated 16th December —

"It is hereby notified for general information that the Sanitary Commissioner with the Government of India will take rank in Article 44 of the Warrant of Precedence for India, published with the notification of the Government of India in the Home Department, No 328, dated the 10th February, 1899

"His Excellency the Governor General is pleased to declare that the Sanitary Commissioner with the Government of India shall have the privilege of private entrée to Government House "

No 44 article includes the Inspector General of Forests in India, and the Director of the Geological Survey. It is in the first class, just under Civil Servants of 23 years' standing and Colonels. The only other appointments, held by Medical Officers in the first class are Colonels, I M S who rank No 41 and Inspectors General of Prisons who rank No 46. The Sanitary Commissioners under Local Governments rank in second class No 68 or in the same class which is headed by Civilians of 18 years' standing and Lieut. Colonels. Majors and Civilians of 12 years' standing head the fourth class or No 74. Other Medical Officers of course take precedence according to their army rank only

THE services of Lieutenant T O Rutherford, I M S, and of Lieutenant E W C Birdfield, both employed recently on plague duty, are replaced at the disposal of H E the Commander in Chief

CAPTAIN H H KIDDLE, I M S, joins the Chemical Examiner's Department, and is attached to the Bombay Laboratory

CAPTAIN G Y C HUNTER, I M S, who was for sometime on the half pay list, is promoted Major from 17th November, 1905

THE following India Army orders are dated 27th November, 1905

It is notified that the Government of India have decided that an officer may be held to have passed the obligatory test in Persian if, after first passing the Lower Standard in that language, he subsequently passes a supplementary examination in subjects (b), (c) and (d) of the obligatory tests as detailed in Appendix V, Army Regulations, India Volume II

An officer who, having passed the Lower Standard in Persian, subsequently passes a supplementary examination in the three subjects above referred to, will not be entitled to the reward of Rs 100 admissible under Article 854, Army Regulations, India Volume I, Part I, as he will already have received the reward of Rs 150 admissible under article 853 *ibid* for passing the Lower Standard

It is notified that the Government of India have decided that the Lower Standard examination in Pashtu shall, with effect from 1st January, 1906 be abolished, and an Elementary Standard introduced in its place, which will be a purely colloquial test carrying a reward of Rs 80

The examination, which will be conducted by a military officer who has passed the higher standard in the language, will consist of the following tests —

(a) *Viva voce* translation into English of ten simple Pashtu sentences, chiefly relating to professional topics, dictated by the examiner and taken down by the candidate in the Roman character

(b) *Viva Voce* translation into Pashtu of ten simple English sentences chiefly relating to professional topics, dictated by the examiner to the candidate

(c) Conversation in Pashtu on general topics, with a Pathan

The total marks allotted to subjects (a), (b) and (c) will be 40, 60 and 100, respectively. In order to qualify, the candidate must obtained not less than 50 per cent in each subject, and 60 per cent in the aggregate

1 Officers serving in corps wherein Pashtu is the obligatory language will be ineligible for examination by the Elementary Standard

CAPTAIN J W F RAIT, I M S, was allowed combined leave for 22 months from 12th December, 1905, or date of relief

CAPTAIN J G MURRAY, I M S, is appointed Civil Surgeon of Purnea, *vice* Capt Rait.

ON return from leave Captain Holdich Leicester, F R C S, M R C P, M D, &c., I M S, is appointed first Resident Surgeon, Presidency General Hospital, Calcutta

CAPTAIN G H STEWART, I M S is placed on special duty with the Wellaung Expedition in Upper Burma, and is relieved as Civil Surgeon, Falam, by Military Assistant Surgeon E J Murphy

CAPTAIN P DEE, I M S, has been permitted to return to duty in Burma

PENDING further orders Captain R W Anthony, I M S, was ordered to act as Civil Surgeon, Dhulia

LIEUTENANT COLONEL A V ANDERSON, M B, I M S, has got five months' and three days' extension of furlough

LIEUTENANT COLONEL W A CORKERY, I M S, obtained seven weeks' extension of leave

CAPTAIN J A BARNES, I M S, has been permitted to resign the service, with effect from 9th December 1905

LIEUTENANT H C KEATES, I M S, took over the civil medical duties of Kohat District, relieving Lieutenant Colonel J W Rodgers, I M S, on 30th November 1905

CAPTAIN D H F Cowin, I M S, acts as Superintendent, Montgomery Central Jail and Civil Surgeon of Montgomery from 23d November 1905, on which date he relieved Captain H D Peile, I M S

MAJOR E VICTOR HUGO, I M S, has got an extension of furlough for 7½ months

CAPTAIN A C MACGILCHRIST, I M S, is appointed to act as Statistical Officer, with Government of India, in the Medical Department, *vice* Captain S P James, I M S, gone on leave

CAPTAIN W D RITCHIE, I M S, goes to Jalpaiguri as Civil Surgeon, *vice* Captain MacGilchrist

CAPTAIN CLAYTON LANE, M D (Lond), I M S, is posted temporary to Nadia, his transfer to the new Province having been cancelled

CAPTAIN W V COPPINGER, I M S, may probably return to Bengal and, hand over Chitragong to Major Jordan, I M S, on the return of the latter from furlough

CAPTAIN S R CHRISTOPHERS, M B (Viet.), is appointed Superintendent of the King Institute of Preventive Medicine (*sub pro tem*), with effect from the date on which Lieutenant-Colonel W B Bannerman, I M S, was confirmed as Director, Plague Research Laboratory, Parel, Bombay

CAPTAIN G H STUART, I M S, has passed in Burmese by the Lower Standard

CAPTAIN F D BROWNE, M B, I M S, is confirmed in his appointment as Superintendent, Central Jail, Jubbulpur, with effect from 28th April 1905

ON return from furlough Major Andrew Buchanan, M D, I M S, is posted to Hoshangabad, C P, as Civil Surgeon

THE following appeared in Northern Command Orders, dated 21st December 1905 —

"828 Wearing of Kamarband —It having been noticed that the terms of paragraph (iii) of India Army Order No 655 of 1904, are not universally complied with the attention of all concerned is directed thereto. The Kamarbund must be worn as directed in the above quoted India Army Order and no deviation from the terms thereof is permitted"

COLONEL H R WHITEHEAD, F R C S, R A M C, Principal Medical Officer, Abbottabad and Sialkot Brigades, is

transferred as Officiating Principal Medical Officer to the 2nd (Rajal Pindi) Division, *vice* Colonel B M Blennerhassett, F R C S I, C M G, R A M C, granted leave out of India

BRIGADE STAFF—Lieutenant-Colonel D O'Sullivan, F R C S I, R A M C, to officiate as Principal Medical Officer, Abbottabad and Sialkot Brigades, *vice* Colonel Whitehead, R A M C, appointed to officiate as a Divisional Principal Medical Officer

726 MANNFR OF RECORDING SERVICE WITH TIBET MISSION ESCORT—In continuation of India Army Order No 249 of 1905, it is notified with the approval of the Government of India, that service with the Tibet Mission Escort will be recorded in the Army List and Records of Service as follows—

"Tibet, 1903-1904," for all who served with the escort between the 13th December 1903 and 23rd September 1904 followed, when necessary, by a reference to any of the particular operations specified below in the case of those who actually took part in them—

- (i) Action at Nairi, 26th June 1904
- (ii) Operations at and around Gyantse, between 5th May and 6th July 1904
- (iii) March to Lhasa, 14th July to 3rd August 1904

LIEUTENANT COLONEL DAVID PRAIN, of the Bengal Medical Service, has been appointed Director of the Royal Botanical Gardens at Kew from December 1905. He is the first officer of the I M S to hold this, the most important botanical appointment in the world. Though much of Sir Joseph Hooker's earlier work was done in India,—witness his "*Himalayan Journals*"—he was not a member of the service, but travelling in search of botanical discoveries.

Lieutenant-Colonel Prain was born on 11th July 1857, educated at Aberdeen University, where he took the degrees of M A in 1878 and M B, C M, with Honours, in 1883, and entered the service on 1st October 1884, becoming Surgeon-Major and Lieutenant-Colonel twelve and twenty years after, respectively. He also took the diploma of L R C S, Edinburgh, in 1883. In 1900 the University conferred upon him the Honorary Degree of LL D, and in 1905 he became a Fellow of the Royal Society. He is the author of one large botanical work, "*Bengal Plants*," published in two volumes in 1903, and of numerous smaller contributions to the Agricultural Ledger, the Records of the Botanical Survey of India, Scientific Memoirs, &c. The Army List does not credit him with any war service.

MAJOR C R M GRIFFIN, F R C S, I M S, who has been Civil Surgeon of Simla for past four years soon reverts to Bengal, and goes on furlough for two years. He will be succeeded by Major McNab, F R C S, I M S.

CAPTAIN F D S FAIRFAX, I M S, has gone on furlough for 18 months from 23rd December 1905.

CAPTAIN D C KEMP, I M S, is due out from leave and five months' study leave on 24th June 1906.

CAPTAIN C B HARRISON, I M S, on return from short privilege leave, was ordered to Tinnevely as District Medical Officer.

LIEUTENANT E W C BRADFIELD, I M S, who was on Cholera duty, Madras, reverted to military employ on 17th November 1905.

THE New Year's Honours List is singularly blank as regards the Medical Departments, who are as conspicuous by their absence as is the Public Works Department.

SURGEON GENERAL W R. BROWN, of Madras, gets a C I E, Lieutenant-Colonel Shore, I M S, and Mr Knight, (for many years employed in the Medical College, Calcutta), got the Kaiser Hind Medal, that is all, except for a Civil Hospital Assistant or two.

CAPTAIN H D PEILE, I M S, has been appointed to be Superintendent, Central Prison, Fatehgarh, *vice* Lieutenant-Colonel R Wen, I M S, appointed Inspector-General of Prisons, Eastern Bengal and Assam.

MAJOR W R OLARK, I M S, was placed on special duty at Lahore from 16th November.

MAJOR F P MAYNARD, F R C S, I M S, is confirmed in the appointment of Professor of Ophthalmic Surgery in the Medical College, Calcutta, from 21st November 1905, *vice* Lieutenant-Colonel J Lewtas, M D, retired.

THE following are re-appointed to be Honorary Assistant Surgeons to the Viceroy—
Assistant-Surgeon E Mackenzie, Bombay

Assistant-Surgeon C A Lafrenais, Madras.
Assistant-Surgeon Nitya Lal Basak, Central Provinces
Assistant-Surgeon Maung Tha Nu, A T M, Burma
Assistant-Surgeon Ata Muhammad, Khan Bahadur, Punjab
Assistant-Surgeon Mahendra Nath Ohddar, Rai Bahadur, United Provinces
Assistant-Surgeon Gopal Chunder Chatterjee, Bengal

SURGEON GENERAL and Mrs Bomford gave a dinner on Saturday, 27th January, at Peliti's to all Officers, I M S, and their wives and to other medical men in Calcutta. It was very largely attended and was a most enjoyable evening.

ON Saturday, 3rd February, the foundation stone of the new surgical block in the Medical College, Calcutta, will be laid with full Masonic honours. An account of the foundation of the Hospital in 1848 was reprinted in our issue for January 1905.

THERAPEUTIC NOTES AND PREPARATIONS

THE Pleated Compressed Sanitary Towels of Messrs Burroughs, Wellcome & Co, possess several points of superiority over ordinary commercial sanitary towels, and are in every way the most convenient and satisfactory. They are made of materials of exceptional quality, specially prepared for the required purpose, their highly absorbent properties being particularly noteworthy. The delicate texture of the outer covering ensures absolute freedom from the slightest sense of discomfort in use.

After being highly compressed, each is enclosed in an efficient protective covering, perfect cleanliness being thus secured.

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THE Agents for PROTENE are Messrs F R Hill & Co, Bombay. This substance is strongly recommended by Dr Haig, and E H Miles, the champion athlete, practically lives upon it. The same firm are agents for DAHL'S MILK, which we have already recommended as the best of preserved milks.

SULPHAQUA is highly recommended by physicians for various skin disease and alopecia and for chronic articular rheumatism, as a disinfectant after measles, chicken pox, small pox, &c, it is to be strongly recommended.

Notice.

SCIENTIFIC Articles and Notes of Interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested.

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta.

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker Spink & Co, Calcutta.

Annual Subscriptions to the *Indian Medical Gazette*, Rs 12, including postage, in India. Rs 14, including postage, abroad.

BOOKS, REPORTS, &c, RECEIVED—

Allbutt's System of Medicine, Vol. I. New Edn. (Macmillan & Co)
Braun's Animal Parasites of Man (Baile Sons and Danielson)
Stewart's Physiology. New Edition.
Roberts' Practice of Medicine. New Edition.
Auto-intoxication and Disease. Bronchad and Oliver.
The Food Factor in Disease. F Hare (Longmans).
Text Book of Psychiatry. Bianchi and Macdonald (Ballière, Tindall & Cox).
Practical Nursing. W Blackwood & Co.
Report of Septic Tank Committee.

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM—

Capt Clements, I M S, Agra, Major H Smith, I M S, Jullundar, Major Marks, I M S, Saharanpur, Capt. Selby, I M S, Sitapur, Lt. Brodribb, I M S, Jhansi, Capt Thurston, I M S, Calcutta. Dr Newell, I M S, Calcutta, Major Maynard, I M S, Calcutta. Capt Standage, I M S, Bangalore. Lt. Col Crawford, I M S, Hughli, Major Herbert, I M S, Bombay, Dr Lingard, Muktesar, Lt Col Lee, I M S, Madras.

Original Articles

EXTRACTION OF CATARACT IN THE CAPSULE

BY HENRY SMITH, M.D.,

MAJOR, I.M.S.,

Civil Surgeon, Jullundur

IN your February issue Major H Herbert, I.M.S., says—"Now, however, the Jullundur practice is being followed, apparently, elsewhere in India by junior Surgeons. . . under the circumstances it appears perhaps advisable to re-state and re-examine the fundamental objections to the operation as a routine method of treatment" Fundamental objections there have been to every advance in surgery, but they have so often before had to make way when confronted with the facts of practice and have so often been proved erroneous by the results of practice that we are not disposed to regard them as insuperable in this case either. He further says that "the operation violates the essential conservatism of correct surgery in that it introduces a risk unnecessarily, *i.e.*, for the sake of advantages which can be obtained without risk." This is the substance of the case. This is saying that iritis and irido-cyclitis are without risk, that after-cataract is without risk, and that the treatment of the invariable after-cataract is without risk. It assumes that a treated case of iritis or of irido-cyclitis or of after-cataract or of all combined gives as satisfactory a result as an extraction in the capsule which is free from those conditions. These are assumptions which, I think, few will admit. In my experience there is no inflammatory storm in the interior of the eye after cataract extraction which does not leave its enduring mark. The capsule, whether needled or not, does not always remain an innocent body. My experience is that needling an after-cataract is as formidable to the eye as the extraction of a cataract in the capsule. My opinion is that those cases which go wrong in needling are more to be attributed to the disturbing of this functionless body—akin to disturbing a foreign body whose power for evil was latent—than to septic organisms. I fear septic organisms have often been made to prove too much.

My critic attributes to the lens capsule left behind the function of a "supporting diaphragm." What happens to the function of this so-called supporting diaphragm when it is needled, as it should invariably be? This function is, in my opinion, very doubtful from a physiological point of view. The lens is developed in and with the capsule, and the capsule is part and parcel of the lens from the beginning to the end. The orthodox operation is only partial extraction of cataract. The capsule has a function in health, *i.e.*, it is through it that the lens is rendered more or less convex in the act of accommodation. Ex-

traction of cataract in the capsule distinctly proves that the vitreous in its own hyaloid membrane supported by a normal aqueous tension requires no such supporting diaphragm. This is practice to which theory has to submit.

I think in fairness to the figures which Major Herbert uses in his second paragraph that he should not throw out those 35 unfavourable cases, but include them.

As regards escape of vitreous he says in his third paragraph that out of 22 cases of escape 3 were only able to see moving bodies. In his paragraph 4 he says that 12 cases or 24 per cent of his 50 cases of extraction in capsule could only see fingers, though no escape or other accident is said to have occurred in those 12 cases. He gives us no detail of those cases. The expression I have often used is that "escape if it be not considerable is of no importance," was the escape in those 3 cases considerable? Were those 3 cases before operation like the other 12 cases above noted, in which latter I presume—though in this I may be wrong—that the retina was almost functionless before operation. The most copious escapes of vitreous I have seen have been in patients who shot out the lens and vitreous immediately on completion of the incision, whether I had intended to extract in the capsule or not. I have noticed that a number of the cases with such copious escape have poor vision afterwards, and that on ophthalmoscopic examination of such cases of rapidly failing vision the retina atrophies, resembling the retina of retinitis pigmentosa sine pigmento, or as in cases of lens couching in which vision rapidly fails. I have also seen cases of copious escape which now many years afterwards, have first class vision with no tendency to fail.

He says "We have certainly seen detachment follow operation, though rarely, where no vitreous had been lost in eyes neither myopic nor obviously unsound previously. We are not prepared, therefore, to assume that small losses of vitreous are harmless." When examined carefully the reverse conclusion would follow from these premises with equal cogency. However, I assume that it implies an importance in the "supporting diaphragm" as a preventive of retinal dislocation. In my experience of extraction of cataract in the capsule, detachment of the retina is an exceedingly rare thing, so rare that I see no function of the supporting diaphragm keeping it in its place. The few detachments I have seen have been in cases which left the operating table to all appearance satisfactory in every way, not in cases of escape of vitreous. Traumatic detachment as distinguished from detachment connected with operation generally occurs when the coats on which the retina rests are ruptured and when presumably effusion occurs beneath the retina flooding it up. In cataract extraction we do not interfere with the portion of the eye on which the retina rests and to which it is organically attached. In my opinion detachment

of the retina, when there is not a pathological condition of it, requires interference with the coats to which it is attached. My experience leads me to the conclusion that the retinal attachment is strong enough to retain it in position when the "supporting diaphragm" is removed and when considerable escape of vitreous has occurred if we have not put pressure on the eye over the ciliary or post-ciliary regions in extraction of cataract. In this respect, I had two cases in one morning of detachment in which I had tried to dislocate lenses with weak capsules, so that the part most distal from the wound would be dislocated first, and in doing so I deliberately put pressure on the ciliary region. It is needless to say that I at once ceased that practice. Hence I advise in cataract extraction, by any operation, that pressure should not be put on the ciliary or post-ciliary regions.

There is in my experience a definite connection between the position of the corneal incision and escape of vitreous. Whatever operation we do we are far more liable to have escape in downward incisions. Major Herbert's 35 cases illustrate this fact. The patient naturally pulls his eye into the position of rest or sleep. The tension of the rectus opposite the incision has much more power of pressing out vitreous than that of the rectus at the incision. In an upper incision if the patient looks much down, we are liable to have escape, but this he rarely does. For these reasons my incision is almost invariably upwards. I never ask a patient to look in any direction, but operate as best I can in whatever position he gives me a chance, which is generally in the position of sleep and which is the safest as far as escape of vitreous is concerned. Directing patients on the table to fix their eye is so seldom effective and so generally takes the nerve out of them, thus making matters worse, that I seldom talk to them at all but go to work with the utmost quietness.

The vision of Major Herbert's 50 cases of extraction in the capsule, in which we are not led to believe that any accident occurred, is to me unintelligible. If he had counteracted the effects of atropine by putting a black disc with a central hole, the size of an ordinary pupil, behind the trial lens I have little doubt the vision would have been different. Examining them for distant or near vision with atropinised pupils after cataract extraction, I think few would expect to give real results. He tells us that they are not appreciably better than his ordinary cases. He gives us no details of the condition of the retina in those 50 cases at the time of operation. In the comparative failures was it atrophied? He raises the point as to possible astigmatism in connection with this operation. I have often examined a series of cases not specially selected and can find no more astigmatism in them than in the ordinary operation, why should there be? I also find that it is rare for my cases to require astigmatism lenses,

Theory holds that a sclero-corneal incision ending in the cornea is more likely to be followed by astigmatism than an incision sclero-corneal throughout. The fact I very much doubt, however, this operation can be done just as well with one incision as with another.

Major Herbert's remarks about our records and statistics would lead to the impression that after-treatment and records are left to very inferior men. As regards the records, the head tickets as far as concerns the operation and the case are written up in every detail by myself before the patient has been removed from the table. The remainder is done by my senior assistant who is generally a first grade or senior Assistant Surgeon who has been carefully selected as being a competent and reliable man. He is generally a first class operator himself, and few men have more experience of the after-treatment of cataract. I go round with him often myself. I treat him not as a subordinate but as my colleague and am particularly careful to never attribute failures to his carelessness and to encourage him to bring anything which is not satisfactory to my notice. He has thus no object in concealing cases or in cooking records. If he were anxious to conceal failures he would be unable to do so as such patients without his permission present themselves before me and I am always visible without any intermediary seven days of the week. Our statistics are made out from the records under my own supervision. Whether favourable or unfavourable no cases are excluded.

Captain Oxley is one of the men who have paid me a visit, and though I had not much cataract at the time I am very pleased to find that the operation has ceased to have any terror for him, and to find that even for beginners there is not so much risk in this operation as I anticipated. I have little doubt that when he has more experience of the operation he will be still more pleased with it.

Major Herbert's interesting paper would have been more so still if he had given us the percentage of iritis and irido-cyclitis he had, and the percentage in which he needed after-ataract before the patients left hospital.

He sums up with the statement that not "a scrap of evidence has been advanced or is ever likely to be advanced sufficient to justify the removal of transparent capsule." Let any one look into the most favourable cases of the ordinary operation with reflected light and observe the difficulty there is in making out the details of the fundus. Whether the capsule is opaque or not before operation, it is always opaque after operation. If we cannot see in through it with ease after operation, how is the patient to see out through it with ease? Let any one read the discussions at the Annual Meetings of the British Medical Association of 1901 and 1904 and of the American Medical Association of 1904 on after-ataract and allied topics and form his

own conclusion as to whether there is a "scrap of evidence" or not. I have recently had a letter from one of the most leading men of the Continental School—not Pagenstecher, who is a known advocate of extraction in the capsule—in which he says 'If you can perfect a method of extracting cataract in the capsule you will be a greater benefactor to mankind than Daviel'."

The inference from Major Herbert's paper would be that any one in the Punjab has only to set to work and that he will do two or three thousand cataracts in the year. Not so. The common experience is that the keen man has to wait for years before he does more than three hundred. The Punjabis are not so simpleminded as all that. They are very careful to know from their friends what the results are, and if the operator's results as regards vision are poor they do not go to him. If the beginner has a few cases which go bad in his first month in either cataract or stone he will find no more patients, for months, of those classes or, in fact, of any surgical class. Hence he is wise if he only operates on the most favourable cases at the beginning. The steadily increasing numbers of those presenting themselves for operation at the Jullundur Civil Hospital until it has now grown to be incomparably the largest ophthalmic hospital in the world is in itself the strongest evidence which could possibly be adduced as to the soundness of extraction in the capsule and as to the soundness of our statistics.

In writing papers on this subject, such as I have written, I have confined myself to the main issues so as not to distract attention through a multiplicity of details, and have preferred to wait for others to raise issues which I would try to answer as they arose. I therefore welcome Major Herbert's paper and any other paper of a similar nature. It is also in the interests of the subject to have the experience of men who, like Captain Oxley, have done this operation

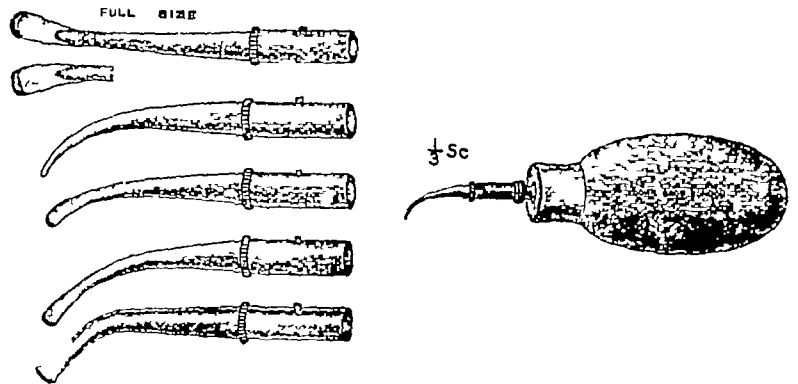
INTRA CAPSULAR IRRIGATION IN CATARACT EXTRACTION

BY W. J. WANLESS, M.D.,

Miraj

NOTWITHSTANDING the very successful reports of a considerable, and apparently increasing, number of Indian Surgeons who practise extraction in the capsule, there will probably remain a large number of operators of moderate or limited experience who will continue to do the older operations with capsulotomy. There is probably no surgeon who has done a dozen or more cataract extractions by "pricking the capsule" but who has ever encountered the difficulty of having the pupillary field subsequently fill up with swollen cortex which was either not visible, or which, if visible, he was unable

to remove completely by expression, stroking the cortex, etc. The syringe devised by McKeown of Belfast for intracapsular irrigation, though suitable for the purpose, has not come into very general use, a fact probably due in part to its complexity. Making use of some of the McKeown cannulas or nozzles, I have had Down Bros of London, make for me a simplified modification of the McKeown Syringe as illustrated in the accompanying plate, and in which the



wash bottle and bellows are discarded. The syringe is made with a bayonet joint attachment to facilitate ready filling of the bulb and changing of the nozzles. The shape of the bulb and bend of the nozzles make syringing easy and safe. The syringing may be done from above, or by use of the angular nozzle from the side. The syringe is supplied in a case with one or two rubber bulbs and 3 to 5 nozzles as desired. We use two bulbs to save the time of refilling, and changing the nozzle to suit the case, though one bulb with three nozzles will usually suffice for all kinds of cases.

The syringe is sterilized by immersing it in, and filling it with, Formaldehyde Solution 1 in 500 for ten minutes (a new syringe should be left in the solution an hour for the first time). Before using it and after emptying it of the Formalin Solution, and in order further free it of the Formalin Solution, it is rinsed out with normal salt solution, this solution also is used for syringing. The nozzles are sterilized separately by boiling. The bulbs are kept in, and filled with, the Salt Solution used for syringing and the nozzles applied after filling, the bayonet joint saving the time of screwing on the nozzles. The rubber bulbs should be retained and used exclusively for cataract work and kept in the case when not in use, thus the interior will practically always remain sterile. In taking the bulbs from the Salt Solution only hands prepared as for general aseptic operations should be used to take them from the Salt Solution, or a wide-mouth sterilized bottle may be used into which only the end of the syringe is immersed in filling and the nozzles then applied by holding them between the folds of a piece of a sterilized lint or gauze.

Personally we prefer to take the same precautions in preparing our hands for eye work

that we do for general aseptic surgery and thus handle the nozzles directly. The points may be introduced freely into the anterior chamber in the average run of patients without danger of injury to the eye, though of course certain precautions are necessary (1) It should not be used in very nervous patients or in those who have not fairly good control over the eye and who are unable to look down when requested to do so (2) The point of the nozzle should be kept clean on Descemet's membrane and not thrust in abruptly, or in a backward direction for fear of rupturing the posterior capsule and hyaloid membrane

After a little experience in the use of the syringe *in suitable cases*, one will often be surprised how much cortex can be displaced and removed from behind the iris or hanging beyond its border which prolonged stroking to displace (3) Prolonged syringing should be avoided. If the syringing is unduly prolonged a striped Descemetitis often results, but this usually clears up in three or four days. We have only known of one case of Descemetitis among some 400 cases in which the syringe was used which had not cleared up before the patient left the hospital and that was when we first began to use the syringe. If Descemetitis results the use of the following solution—

Dionin	gr vi
Eucaine	gr vi
Sodii chloridi	gr x
Sol hydrarg cynd 1—2000	℥i

dropped into the eye three or four times a day hastens the clearing up process. We might say in passing that this solution is now used as a routine in all cases after cataract extraction when there is any ciliary irritation orritis following the operation. It relieves pain, does not increase tension, promotes drainage and aids in the absorption of exudates

The nozzles of the syringe often saves the use of an extra instrument in replacing a prolapsed iris, and the cut edges of the incision are freed of sticky cortex by the gentle irrigation, a manoeuvre which promotes prompt agglutination of the wound

Since we began the routine use of syringe *in suitable cases*, we have had fewer cases of iritis and ciliary irritation following extraction, and the visual results on leaving the hospital have materially improved. The length of the stay in hospital has also been reduced on an average in these cases of two or three days and often more than this—a matter of no small importance to the poor farmer who comes a long distance leaving his animals and children in charge of his neighbours and who often wants to leave the hospital the moment the bandage is removed, if not before

With regard to the danger of infection, we believe this to be practically nil where the above precautions are observed in sterilization. In the last two hundred cases in which the syringe has

been used we can recall only two wound infections in one of which the patient greatly interfered with his dressing and rubbed his eye, re-opening his wound. The other occurred after the use of a new syringe for the first time and which had not been sufficiently sterilized. This was only a slight infection and fairly useful vision was finally secured

For the removal of soft cataract this syringe has replaced entirely the old suction method and it is in this that the syringe is especially useful

In writing the above we are well aware that we run counter to the teaching of some of the standard text books on ophthalmology and by advocating the use of the syringe we may be charged with "fiddling" or "trying to do too much". However where we see the majority of our patients only once and the opportunity to do a decision before the patient leaves the hospital is not presented, since time enough has not elapsed after the operation, we believe we are therefore warranted in attempting to secure better immediate results in this class of patients. We are gradually increasing the number of extractions in the capsule, but we do not find the final results on the whole are any better than those secured by extraction with capsulotomy and intracapsular irrigation *when necessary*. It was after reading the article of Major Elliot of Madras in the *Indian Medical Gazette* of April 1903 that we were encouraged to persist in the use of the McKeown method, and we must say that the more we become familiar with the method the more we value it

NOTES ON OPHTHALMIC SURGERY

By JAMES M. MACPHAIL, M.D. (Glas)

The following notes are based upon 4,848 eye operations performed during the seven years, from 19th January 1899 to 18th January 1903, in the hospital of the United Free Church of Scotland Mission, at Bandah, in the Jamui Sub division (thana Chakar), of Monghyr District. The operations of which 20 or more were performed were—

Cataract Extraction	2,596
Iridectomy	1,140
Entropion and Trichiasis	305
Tattooing	3-9
Paracentesis of anti chamber	171
Pterygium	107
Capsulotomy	42
Iridotomy	28
Staphyloma	21
Exenteratio bulbi	20

The other operations, 59 in number, consisted of enucleation, slitting of canaliculus, peritomy, cantho plasty, excision of tumours removal of foreign bodies from cornea and operations for ectropion symblepharon and chalazion. The preponderance of major operations—cataracts make up more than half the total,—is due to the fact that the patients mostly come from distant places. For a radius of four miles round the hospital the population is sparse and consists chiefly of Santals. The cases are drawn practically from all parts of Bihar, and also from Hazari bagh, Manbhoom and other parts of Chota Nagpur, while a few find their way from places as far distant as Benares to the North West and Calcutta to the

South east They represent every section of the community, Hindu, Mahommedan, Aboriginal and Native-Christian. There is a well marked periodicity in the flow of patients. The two favourite seasons are the intervals between the harvest and the rice planting—January to July, and October till December, the two crises usually occurring in March and November. The largest number of operations done in a day was, on 25th November last,—42 including 31 cataracts, but they were really the accumulation of a week during which I had been on tour.

Cataract—During a previous period of eight years from 1889 to 1897, the number of cataract operations was 238, of which 110 were performed during the last twelve months of that period. During the seven years now under review, the number of cataract operations have been 148, 213, 372, 394, 364, 579 and 516 respectively, or 2596 in all. The cataracts have been for the most part senile, but it is impossible to get accurate information regarding age. There have been a few cases of alleged congenital cataract and others in children under five years of age.

There is not space to give a detailed analysis here of these cataract cases—with the Editor's permission that may form the subject for a special article at some future time,—and it may be as well confessed that pressure of other duties and the circumstances of the work have made it impossible to test the results with scientific accuracy. Few of the patients are literate, and a degree of vision that enables them to resume their ordinary work with comfort satisfies them. In the case of literates, the result is not classed as successful unless the patient can read print with the aid of spectacles. The comparatively few of the cases are seen again after they have left hospital, but if one may judge from these few, the general tendency is for an eye to improve after operation. Most of the patients who come say they have come because some one else in their village had sight restored at the mission hospital. In this way it is possible to obtain a rough and ready record of cases that are not seen again. "I came here," said an opium farmer one day, "because a weaver in my village had his eyes made here last year." "And can the weaver see?" "How could he weave cloth if he did not see?"

The notes on the cataract cases in this paper will be limited to some of the general impressions which have been made and the lessons that have been learned.

In the first place, the general result of a fairly extensive, and I think unprejudiced experience of both the simple and combined operations has led me to prefer the latter. "I have tried it both ways" as the Scotchman said about the proverb regarding honesty being the best policy, with the result that the rule I got from Dr. Macdonald Ramsay of Glasgow in student days has been abundantly confirmed. The rule was that without iridectomy you will get some prettier results than otherwise, but with iridectomy you will have a larger percentage of successful cases. It is to be observed, moreover, that many surgeons who perform the simple as their routine operation, reserve iridectomy for difficult or complicated cases or for patients with one eye. This is surely an admission that there is additional safety in an iridectomy and if this is so surely all patients should get the benefit of it. I perform iridectomy now even in cases of soft cataract as I have had even in such cases prolapse of iris after simple extraction. The rule with some surgeons is to perform the simple operation whenever they can make sure of "immobilising" the patient. The Indian patient is in my experience particularly mobile and an astonishingly large number of old people of the poorer class also suffer from chronic bronchitis, a complication, which, I think, predisposes to prolapse of iris and calls for every possible precaution against it. It is highly desirable in this country to secure rapid healing of the wound, the risk of sepsis is so great, and the patient so unaccustomed to the restraints of hospital life, and prolapse of iris, even if it can be to some extent

remedied by an iridectomy, is a serious interference with healing. Of course the iris may prolapse even after an iridectomy, but it is a much less serious complication to have a tag of iris caught in the wound than to have a hernia of the uncut iris. I have come to the conclusion in fact, that such partial prolapses are as a rule best left alone, unless it is possible to excise or replace them before they become fixed.

A modification on the routine practice which I have adopted during the last two years is the opening of the capsule with the point of the knife when making the corneal incision. One advantage of doing so is that it saves an instrument, thus diminishing the risk of infection, and also shortens the operation. It is also of some diagnostic value. If milky matter flows out, a smaller corneal incision than usual is necessary to remove the lens. If the capsule resists the point of the knife its removal entire may be attempted. A good conjunctival flap is also, I think, a decided advantage, as an aid to rapid healing and a safeguard against infection. The only drawback is the hemorrhage which if it finds its way into the anterior chamber obscures the field of operation. This is overcome by the use of adrenalin, which is in any case a useful application as it evidently increases the efficacy of the local anæsthetic.

A point to which it seems to me sufficient prominence is not given in the literature of ophthalmic surgery in India is the necessity of having a sharp knife. The dragging which is inevitable if the knife is in the least blunt is very apt to cause an escape of vitreous and a ragged edged wound heals less quickly than one with even edges. I always clean and dry my own knives, and I do not think any thing more is needed besides keeping them in as dry a place as possible, and I always send them to London to be sharpened by Weiss or Down. I find I get them back from England just as speedily as from Calcutta or Bombay. With a single knife, sharpened in London and carefully cleaned, I have sometimes performed fifty extractions or more. With reference to sepsis the surgeon would like very much to lay the flatteringunction to his soul that when his cases suppurate it is due to the fault of the patient, who insists upon opening his bandage to have a look round a few hours after operation or rubs the eye with a dirty finger. No doubt secondary infection does sometimes occur,—I once had a case where suppuration appeared on the 8th day in a wound that had apparently healed, and went on to total destruction of the cornea,—but I believe the greatest risk to which the cataract patient is exposed is septic infection at the time of operation.

After the simple operation, eserine was instilled to diminish the risk of prolapse but it has been discarded since the adoption of iridectomy and atropine is only used if there are premonitions of iritis.

The unripe cataract is a serious problem. A man comes a long journey, hoping to get relief for eyes that have ceased to be of much use to him in his work, but in which the cataract is still immature. If you refuse to operate he may go off to a *baird*, who coaches both lenses without scruple. My rule is to operate when the patient can no longer count fingers (and to take the responsibility of the iris to light as a sufficient proof that the eye is otherwise healthy), but in a few exceptional cases I have removed a lens that was not quite mature and reopened the wound with a keratome a week later to evacuate the soft matter. Recently I have been performing iridectomies for unripe cataract. The immediate effect is to improve the vision by exposing the least opaque portion of the lens. In some cases at least it hastens the ripening process, and when the cataract is mature it simplifies its extraction.

Complications have been very numerous, but less in the recent than in the earlier years, as more patients now come direct to hospital instead of going first to the *bairds*. It is somewhat difficult to form an accurate estimate of the results of the couching operation so largely practised in India, for it is as a rule the *baird's* failures who come to us, and I suppose many of our failures go

to them. It is hardly credible that they could maintain their reputations unless they at least occasionally scored a success. The immediate result often seems to be good, but the presence of what is practically a foreign body in the eye is a very grave danger. One patient whose right eye I operated on told me that he saw well with the other eye for five years after being operated on by a *bard*, then it became quite blind. In fourteen cases I have removed dislocated lenses, with improvement of vision except in one case which suppurated. There was an escape of vitreous in two other cases.

In six cases (four persons) the patients were lepers, all successful. Only one of the cases was diabetic, the wound healed well but the improvement in vision was only slight. One case was insane, another deaf and dumb, in both good results were obtained. In 22 cases with total adhesion of iris to capsule, Wenzel's operation was performed, a flap being made consisting of cornea, iris and capsule, as much iris as possible cut away, and the lens delivered. In three of these cases (in one of which there was loss of vitreous and hæmorrhage) there was no improvement in vision, in the others a fair amount of vision was restored. In five cases of very old cataracts, calcareous degeneration had taken place. In such cases the amount of vision restored was very little more than existed before operation, as the retina had evidently atrophied, but there was some possibility of its improving with time. There were five cases of traumatic cataract due to injury, and a considerable number of cases indistinguishable from traumatic cataract, but due to perforating ulcers of the cornea. In nearly all these cases there were adhesions of the iris, anterior or posterior and opacities of the cornea as well. The results in the strictly traumatic cases, operated on before adhesions had formed, were good, and in the latter class, more or less improvement was effected. Increased tension has seemed to be the most serious complication from the operator's point of view, the risk of loss of vitreous and of hæmorrhage may be diminished by chloroform, but they are by no means abolished, for if itching and vomiting occur the results may be as bad as they could have been with a local anæsthetic.

In one case death followed cataract operation, although it is doubtful if it was the result of it. An old Brahmin pilgrim, about 65 years of age, came into hospital with unripe cataract. He was unfortunate and prevailed upon me to operate. The eye suppurated so badly that it had to be enucleated. Dysentery set in afterwards and ended fatally. His daughter who was with him then told me that the real reason why he became ill and died was because in hospital he could not get the large quantity of opium he was accustomed to eat.

As regards the operation of removal of the lens in the capsule, which has been so brilliantly successful in the hands of Major Henry Smith, I gave it a fair trial after reading his paper in the Ophthalmic Number of this journal about four years ago. One hundred and four cases were operated on in this way, all selected cases, Major Smith's rules for the discrimination of suitable cases as well as his technique being carefully followed. The first few cases were so satisfactory that this method seemed to be as ideal in practice as it undoubtedly is in theory. In one case the right eye was operated on by the ordinary method without iridectomy, fourteen days later the lens was removed from the left eye in the capsule. When both eyes were examined a week later, the vision in the left eye was found to be better than that on the right. In one case the patient could count fingers at 25 feet thirteen days after operation, in another at 30 feet after eight days. When vitreous escaped, it did not seem, in some cases at least, to be a very serious complication. In the worst case of all the series the case that is to say in which the greatest amount of vitreous was lost—the patient was able eighteen days later to count fingers at 6 feet. But these favourable impressions were not confirmed by an analysis of over 100 cases. It was found that vitreous had escaped, without

other complications, in 20, and in nine additional cases there was in four a rupture of the capsule, in three a prolapse of iris, in one suppuration and in one hæmorrhage as well. In the previous list of 100 cases of the ordinary operation, there had been a loss of vitreous in five. There were ten cases in which the capsule was accidentally ruptured (not counting the four already referred to in which vitreous also escaped). In these ten cases I think I was able to extract the entire capsule according to Major Smith's directions, by grasping the protruding part with a pair of ordinary dissecting forceps. Prolapse of iris occurred in 13 cases, requiring iridectomy, also, as already mentioned, in three cases where vitreous escaped, and in another case where there was subsequently suppuration. In the previous 100 cases prolapse of iris occurred in seven. Four cases suppurated, including one just mentioned where vitreous escaped, and another in which there was also prolapse of iris. In another case the lens with the capsule, disappeared from view in the posterior chamber, but was removed two days later. The most discouraging cases of all were two in which hæmorrhage took place. In one it occurred during the night after operation. The patient was a half-witted old woman, who, I was told, had for some unaccountable reason, taken to beating her head on the floor. The next day she ran away, so although the case had to be recorded as a failure, it is doubtful if the method of operation was to blame. The other case was of a less doubtful nature. I had finished the operation without unusual difficulty or complication, and was about to apply the dressing, when the vitreous began to well out of the wound. It was followed by free hæmorrhage which was controlled with difficulty by injection of ergotinine and pressure but not before the eye was ruined. There had been no apparent increase of tension nor did the patient seem to be straining. Mainly in consequence of this experience I have since then performed this operation only in cases of exceptionally tough or opaque capsule. It should be added that the operation as first described by Major Smith, was done without iridectomy, and that was the method followed in the above series. He now performs and recommends iridectomy, and I am inclined to try the operation again with this modification. But in the meanwhile the general impression left in my mind by my own experience is that removing the lens in the capsule is playing for high stakes. The results in many cases are exceedingly good,—of that there can be no doubt,—but whether the average result is as satisfactory in the hands of an ordinary operator as that obtainable by other methods is more doubtful. The main risk in this method is loss of vitreous, in the others it is retention of capsule, and to decide which of these two is most fraught with ultimate danger to the patient, demands a more intimate and prolonged knowledge of his subsequent history than it has been my own good fortune in many cases to be able to acquire. One consideration to be borne in mind is, that in most cases capsule left behind can be afterwards removed or broken up, but nothing can be done to restore the loss of vitreous. In one case lately where the capsule was very resistant to the point of the knife and also rendered opaque by deposits, I removed it entire not by pressure and counter pressure but by traction by means of a hook. It seemed to me that this was a better plan, but it is doubtful if there are many cases in which the capsule is sufficiently tough to make it practicable.

In fairness to Major Smith's method it should also be added that in one respect I was not able to carry out his directions. He has always insisted upon the necessity of having a competent assistant to relieve the pressure of the speculum on the eyeball and after the removal of the speculum to keep the eye open. My operations are performed with only a Santal Jod trained locally as a compounder to assist me and as a rule he has nothing to do with the operation itself, his duties being confined to preparing the patient and the instruments beforehand and applying the bandage afterwards.

With a more highly qualified assistant better results might have been obtained, but it is a point in favour of the ordinary operation that in performing it the surgeon is independent of assistance. Since October 1904, I have adopted a procedure which is strongly disapproved of by most authorities, although I believe it was followed by some of the older operators in Calcutta—the extraction of both cataracts at the same time. The main reason which seemed to me to justify this step was that the large majority of the cases came from considerable distances—three or four days' journey in many cases and in some more—and were also anxious to return home as soon as possible, and also, if possible, to be saved the trouble and expense of another journey. Previously, eight or ten days were allowed to elapse between the operations on the different eyes, but it was found that after the second operation the patient was usually restless and refractory and often ran away. It is also undeniable that we see much less of sympathetic irritation in these days than did our fathers before the advent of antiseptics,—personally the only cases in which it has seemed to me to be clearly proved that an eye had been damaged by sympathy have been cases of foreign bodies and dislocated lenses. As a matter of fact the number of cases in which the double operation was performed was 211 (422 eyes), and in no instance has there been any reason to regret it. There was suppuration in ten involving total loss of the eye in at least four (in four cases patients left hospital without leave and the result is unknown), but in no case did suppuration take place in both eyes, nor in any case was one eye as far as my observation went, seriously damaged by suppuration in the other eye. I often used to observe when dressing cataracts for the first time after operation, that there was more discharge from the eye that was not operated on than from the other. Of course this could be prevented by subjecting both eyes to the same cleansing processes even when only one is operated on, and unless this is done it is possible that the operation suffers more risk from its proximity to an eye that has been left in a septic condition than from an eye that has undergone an operation under careful antiseptic precautions. Of course both eyes may suppurate after the simultaneous operation, the same thing may happen however long the interval between the two operations may be.

Of 1105 extractions in the last two years 19 suppurated; in six there was hæmorrhage after an escape of vitreous, in three the pupil was occluded as the result of iritis, and in one case I failed to extract the lens. In this case the contents of the eyeball seemed to be entirely fluid and it collapsed when the corneal incision was made. By excluding eyes in which tension was above normal, the failures from hæmorrhage might probably be reduced, but the principle always followed has been to operate whenever there was a possibility of restoring vision. In some of the cases, of suppuration and in all the cases of iritis the failure was not total a sufficient amount of clear cornea being left to enable some vision to be secured by iridectomy or iridotomy. In one case the hæmorrhage was so profuse that enucleation had to be performed. In estimating the results of cataract and other eye operations in India, allowance must be made not only for the prevalence of septic conditions but also for the extreme liability of the patient to suppurative mischief owing to low vitality. Some inflammatory processes may assume a less æsthetic type among the vegetable eating underfed natives of the poorer class, but I am convinced that the cornea is much more liable to degeneration. One's first impression is that the prevalence of blindness from septic disease must be due to gross carelessness and neglect. Undoubtedly much of this suffering is preventable but by no means all. Once a pilgrim came into hospital suffering from simple exhaustion. He belonged to a wealthy family in Oudh, who, when I wrote to them, at once sent him an ample supply of money. While recruiting his strength in

hospital, the cornea of one eye began to ulcerate and in spite of all we could do, it went on to total destruction. The man himself died soon afterwards, as people often died in the recent famines, because he seemed to have lost the power of assimilating food. In another case a child born in the mission compound developed conjunctivitis a few days after its birth. Suppurative keratitis followed in spite of prompt and vigorous treatment, the cornea sloughed, the eyeball ruptured, and hæmorrhage began. The parents would not consent to enucleation and the child bled to death.

Of this series of cataract operations 64 were performed by my wife, who is a doctor, and seven by my colleague, Dr James Kitchin. The former belonged to the earlier and the latter to the more recent part of the period.

Iridectomy—Number of operations 1,140. Of these about 44% were performed for corneal opacities. In some cases the chance of restoring vision was very small indeed, but a little vision is better than none, and in any case one good result of the operation is to diminish the risk of staphyloma. Operation should be undertaken as soon as possible, even in young children, before the retina atrophies or a staphyloma forms. In cases of partial staphyloma, too, iridectomy has a curative effect if a bandage is worn for some time after the operation, 5% of the iridectomies were performed with this as the main object, 4% were performed for corneal ulcers. If the ulcer is central, the opacity it leaves will certainly interfere with vision, and an iridectomy will make provision for this and also help to cure by diminishing tension. About 33% were for glaucoma. Of all cases of eye operation, these are probably the least satisfactory. The result may be all the surgeon hoped for or aimed at, but it seldom realises the expectations of the patient. In acute cases good results are often obtained, but most of the cases have become chronic before they come to hospital. There seems to be nothing else to do but to perform iridectomy, if only to reduce tension and relieve pain,—especially if only one eye is affected,—but the patient is always disappointed if sight is not restored. 13% were cases where the pupil was occluded by adhesion of iris to capsule or to an exudation membrane. In a few cases, about 1% iridectomy was performed for unripe cataract.

Iridotomy is performed in cases of complete occlusion of the pupil where it is impossible to secure a free edge of iris. It seldom yields a good result as in these cases the iris is usually degenerated, and the opening closes up again.

Capsulotomy is occasionally performed in old cataract cases, but not often, for if the capsule can be freed it should be extracted and if it has become adherent in such a way as to occlude the pupil an iridectomy will probably give a better result.

Pterygium 107 cases. The operation performed is that described by Fuchs,—lifting up the pterygium at the point of its loosest attachment (the junction of the sclerotic and cornea), dissecting it off the cornea, cutting it by a V shaped incision from its conjunctival attachment, and sewing the two arms of the V together with a silk suture. No case of recurrence has been noted.

Trichiasis and Entropion—In mild cases of trichiasis, the misdirected hairs are dissected out with their bulbs. In entropion the operation is a modification of Arlt's, described some time ago by Dr A. Neve of Kashmir in *Medical Missions in India*. An incision is made along the whole length of the edge of the eyelid, between the insertion of the eyelashes and the Meibomian glands. A wedge is then removed from the skin of the eyelid, of varying breadth according to the severity of the case, and its edges sewn together. About 300 eyes have been operated on in this way, with very few cases of recurrence. The neglect to treat granular lids in the proper way is the cause of a large number of cases of entropion.

Paracentesis of the anterior chamber is performed in severe cases of ulceration. In my experience it is more satisfactory than the actual cautery which in the

case of a cornea of low vitality may be followed by sloughing. A larger incision is made when there is pus either within the layers of the cornea or in the anterior chamber.

Lachrymal obstruction—One of the most remarkable features of this record is the absence of cases of lachrymal obstruction. In only 4 cases was the canaliculus slit up or probed. I can give no reason why this should be.

Exenteratio bulbi—making a circular incision round the corneal margin and scooping out the entire contents of the eyeball, so that the sclerotic alone remains—is sometimes practised as a substitute for enucleation in cases of suppuration and panophthalmitis. One advantage of this operation is that it may be done without a general anæsthetic, the local anæsthetic being freely injected by means of a hypodermic syringe. Other advantages claimed for it are that there is less danger of meningitis following than in enucleation, and that it leaves a better stump for an artificial eye, the muscles being left in tact. But in cases of panophthalmitis it in my experience affords less immediate relief than enucleation, which is also indicated in cases of malignant tumours.

Tumours—The most destructive neoplasms I have seen have been cases of melanotic sarcoma. In one case the complete clearing out of the contents of the orbit was demanded. In a well marked case of glioma of the retina in a boy four years old, operation was refused and the case was not seen again. A recent case was that of a fatty cartilaginous tumour of the orbit which had been neglected until it forced the eyeball out of its socket. The eyeball had to be removed along with the tumour, but it is doubtful if at any stage it would have been possible to extirpate the tumour without sacrificing the eye.

Ectropion, symblepharon, and canthoplasty have been rare operations. When an operation has been performed for ectropion it has been usually as a preliminary to cataract extraction. In milder cases a double thread was passed through the lid, from the inside, and the ends brought out at the lower margin of the orbit and tied over a small roll of sticking plaster. In more chronic cases a V shaped portion was excised from the inner aspect of the lid and the limbs sutured together.

Peritomy has been performed in about half a dozen cases for pannus, but the result has not been very apparent.

Staphyloma is a serious disfigurement, but when it is explained that the operation will not restore sight, the patient seldom submits to it. In fact with the exception of tattooing, operations that are not curative but only palliative, are not popular.

Chalazion is rare, only two operations are recorded and I rather think they were in the same individual, the second operation being for recurrence.

Foreign bodies are also rare.

Ptoxis—Since the close of the above record I have performed Panas's operation for ptoxis, dissecting a flap off the upper lid, tunnelling through the eyebrow, and fixing the apex of the flap to the skin of the forehead. It promises to give a good result.

Tattooing—The tattooing of leucomata is an operation which in the writer's opinion is much neglected in India, and the importance of which is very inadequately recognised. A merely cosmetic operation is not worth while. That was my own view of the matter during my first eight years. Early in the first of the seven years now under review however a young Hindu woman of an agricultural caste was brought to hospital with a dense central opacity on each cornea, which seriously interfered with vision. I explained to her that I could improve her sight (by iridectomy) but that the white spots would remain as before. "Unless you can remove the white spots, I do not wish anything done," she replied, and her friends explained that her husband, who was fairly well to do, had turned her off more on account of the

deformity than the defective vision. Of course she would have been glad to have her sight improved,—it was all the more necessary to her now that she was deserted, but like a great many others she thought she would force my hand to perform an operation that I was not in favour of, by refusing me permission to do the operation I recommended. I procured a piece of Indian ink, and tying three ordinary domestic needles together, I tattooed both eyes, and performed iridectomies a few days later. The result was entirely satisfactory. A few weeks later the young woman returned with a whole cartful of female relatives with various eye diseases and my compounder remarked to me significantly that it was her husband's cart. Since then 367 operations of this kind have been performed,—over 100 of them in the last year,—and although special needles made for this purpose are now used, ordinary needles do almost equally well, and when out of Indian ink I have used ordinary writing ink or lampblack. Many of the patients have been little girls whose value in the marriage market was seriously depreciated by a blemish of this kind, or youths who would have to pay an enhanced price for their brides for the same reason. The father of such a youngster, a cultivator of the middle class, once told me that this operation would save him at least two hundred rupees. When I suggested that he might give at least a share of the sum thus saved to myself he said "No, that would cause a corresponding diminution in my *gun* or religious merit." In some cases the patients have declared that they saw better after a non-central leucoma that did not demand an iridectomy had been tattooed. I have never been able to confirm this, but I do not suppose it is altogether impossible that the substitution of a black surface that absorbs light for a white surface that reflected it may have an appreciable effect upon the vision. In many cases an iridectomy is also required. In these cases the plan adopted is to do the tattooing first, and the iridectomy a day or two later. If the iridectomy is done first several days must elapse before it is safe to do the tattooing. In one case I perforated the cornea while tattooing the scar left by a somewhat recent ulcer, but no harm followed. It is a curious fact, by the way, that in India the people call a leucoma a *phul* or flower, and I have heard the same phrase used, a flower of the eye," by dispensary patients in Glasgow.

In a few cases in which the leucoma was due to the ulceration of small pox, the patients refused to have an operation, even although vision was interfered with, as they regarded the spots as sacred to the goddess of small-pox.

Anæsthetics Eucaine in a 2% solution is now the local anæsthetic used. Its advantages over cocaine are that it is half the price, and that it can be boiled repeatedly without losing its efficacy. The fact that it has to be boiled to be dissolved is rather in its favour than otherwise, from the aseptic point of view, but a slight drawback is that in cases of emergency a grain of eucaine placed on the eye does not act so quickly as the more soluble cocaine. The eucaine (Beta eucaine) is the preparation always used) is boiled every morning, but in the cold weather it precipitates very readily, and cocaine in crystals or in tablets, is kept for emergencies. Eucaine too, is less toxic than cocaine. So at least the makers say, and in my own case while I have observed effects in several cases where cocaine was injected and a slight suspicion of the same in a few where it was applied to the eye. I have never witnessed similar effects as a result of eucaine, although I have now used the latter much more frequently. The adrenalin chloride solution, 1 in 1,000, which is now always used in cataract extractions and frequently in other operations as well, is usually diluted with the same strength of eucaine. It is undoubtedly a great advantage to make the first instillation of eucaine twenty minutes before the operation, so as to give it time to render the iris insensitive.

Chloroform is used for enucleation, for extracting the lens in cases of glaucoma, and in practically all operations on young children.

Asepsis and Antiseptics If aseptic surgery means that the operator's hands, the instruments, the dressings, and the patient can before operation be rendered sterile, so that at the time of operation all chemical disinfectants can be dispensed with, then aseptic surgery is in the writer's own experience an impracticable ideal. Instruments and dressings may be sterilised without difficulty, the surgeon's hands are a more difficult problem, and as for the patient—I was once operating on an old Hindu gentleman, a Brahmin, of exceptionally good position as my patient. After repeated scrubbing of his face with soap and water I was still simply scraping the dirt off, and gently remonstrated with him for his lack of cleanliness. "Why," he protested, "I never eat without bathing."

The cleansing of the instruments is probably the point of prime strategical importance, as they are brought into most intimate connection with the wound. I boil all my instruments except the knives. They are dipped in pure carbolic which is washed off with boiled water and the blade is also immersed for a few seconds just before use in boiling water in a small steriliser that stands on the table. My aim is to boil all instruments afresh before each operation. With twenty or thirty operations in one morning this is not always possible, and when it is not, the instruments are dipped in pure carbolic and then in boiled water. When not in the steriliser (and I prefer to take them direct from it) all the instruments are kept in a glass tray in 1 in 20 carbolic. The patient's face is first washed with soap and water and then with 1 in 2,000 corrosive sublimate. Immediately before operation, the conjunctival sac is exposed by means of the speculum and vigorously syringed out with 1 in 4,000 corrosive. The corners are also swabbed with pledgets of cotton wool which have been steeped in the 1 in 2,000 corrosive. After operation the eye is dusted with equal parts of iodoform and boracic, and the piece of lint, the pad of cotton and the bandage which are then applied have all been steeped in the 1 in 2,000 solution and well wrung out before use. In all subsequent dressings, the same procedure is followed—lint, cotton and bandage are disinfected on the spot and at the time. It is simply hopeless to attempt to make or keep the patient or the patient's clothes, or his surroundings, surgically clean. We must, however, use every effort to prevent the infection of the wound at the time of operation or subsequently by vigorous antiseptic measures. As a rule the woman's hair is cropped close. They seldom object when the object is explained to them, except young women of the better off class in whom it is less necessary. This not only gets rid of a likely source of infection, but also facilitates the application of a well fitting bandage.

NOTES ON INSANITY WITH ILLUSTRATIVE CASES

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1 INSANITY consequent on indulgence in the preparations of *Cannabis Indica*.

The position of alcohol as a prominent etiological factor of Insanity in Europe is taken in this country by *Cannabis Indica*, but the prevalence of the habit of indulgence in the preparations of the latter is small compared with the extensive abuse of alcohol which obtains in those countries where a large percentage of mental disorder can be more or less thus directly attributed. Of all insanities among males in this Asylum at the present time eight per cent have followed habitual excess in either or both, *bhanga* or *charas*, the preparations in common use in the Punjab.

With regard to mania alone the proportion rises, as Ewens has pointed out, to nearly 25 per cent for the effect of these drugs is to produce insanity of a purely maniacal type. A pure melancholia following *bhanga* drinking or *charas* smoking does not appear to occur, but occasionally a mixed case is observed, one of those to which the term "Maniacal-Depressive" has been applied. There appears to be at least one such case in this Asylum at present but further observation is necessary before a definite opinion as to its nature is possible.

There are then certain distinct differences between insanity due to alcohol and that following the abuse of hemp drugs. Alcohol is responsible for a much greater proportion of insanity in the countries in which the abuse prevails. According to Clouston this is about 15-20 per cent. The type of insanity produced by alcohol is more likely to be a melancholia of the motor or excited variety than a mania persecutory and depreciatory delusions are frequent, a tendency to suicide is common, chronic cases are liable to end in deep dementia. There are besides many marked physical symptoms which characterise alcoholic insanity as a clinical entity. In insanity due to hemp drugs on the other hand the form is that of a pure mania of a noisy, restless exalted nature except the conjunctival congestion to which Ewens drew attention, there are no distinctive physical signs such as the alcoholic exhibits. If delusions are present they are those of self-aggrandisement, a tendency to suicide is very rare while homicidal acts by hemp drug maniacs are not uncommon. A dementia secondary to chronic hemp-drug insanity is infrequent and is seldom, if ever, so deep as that displayed by the alcoholic.

In Ewens' instructive paper (*I.M.G.*, November 1904), in which he called attention to the prevalence of hemp-drug insanity he states that a mania transitoria will occasionally follow one prolonged excess. Within the past year I have observed two such cases whose records I append. I also give the further history of case No. 66 in Ewens' series as illustrative of a chronic condition following a third recurrence of the indulgence and its consequent acute attack. The fourth case of this variety which I relate is interesting as showing a purely chronic condition of mania resulting from prolonged steady abuse of these drugs.

This patient has, as far as I have been able to ascertain, never exhibited the destructive and filthy symptoms which so often accompany acute attacks. In his case an early termination in dementia, is, I think, not improbable.

CASE 1—MANIA TRANSITORIA FOLLOWING *Bhanga* DRINKING

S. R., a Hindu boy of 17, was admitted into the Asylum on April 1st, 1905, with the following history. He had been employed at Ajmere by a Babu in some domestic capacity. Some difference of opinion had arisen between him and one of the other servants the

patient being the younger agreed to make up the quarrel and was induced to drink a tumblerful of *bharg* by the other as if to celebrate the settling of their differences. This occurred on the evening of March 25th, 1905, and, on the following evening, having apparently enjoyed his first potation, he was given another by the same person. Following this second potation his memory became a blank and it was not until April 6th that he recovered his senses and found himself a patient in the Asylum. From his friends and others we ascertained that on the 27th March he developed an attack of acute mania and was dismissed from the service of his employer, who however, sent him to his home at Jhelum in charge of another servant. At Lahore apparently he became obstreperous his friend deserted him, and, being found disturbing the peace was taken in charge by the police and brought here. On admission he was in a state of acute mania, he was noisy, exalted and destructive. On being asked his name he shouted it deliberately, emphasising each syllable, at pitch of his voice, repeating it several times. His face was flushed and his conjunctivae were congested. He tore his clothes and preferred to remain naked—covering himself with dust and filth. After about five days he began to recover and rapidly regained his normal healthy condition. He gave a coherent account, which was afterwards fully verified, of the occurrences preceding his attack. He remained in the Asylum in a perfectly sane condition, being a great help to the institution as a hospital attendant, for three months when he was discharged to the care of his friends.

CASE 2—MANIA TRANSITORIA FOLLOWING *Charas* SMOKING

N G, a Hindu, aged 30, a criminal lunatic, was admitted into the Asylum on the 28th November 1900, being confined under Section 471, Criminal Procedure Code. On the 21st of February 1900 this man killed an old woman by beating her on the head with a stick and remained sitting by the body after the deed. No apparent motive for the murder could be ascertained. Evidence was given to show that the patient's father had been insane and the patient had on previous occasions exhibited signs of insanity. He was therefore acquitted on the ground of insanity and confined in the Asylum under the section quoted. No history of indulgence in drugs was forthcoming at the trial. When admitted he seemed dull and stupid and his memory was apparently defective. Otherwise he appeared to be quite sane. Eventually it is recorded in his case that the man is "an unprincipled scheming liar." He was reckoned as "sane" until July, 1905. On the 14th of that month he was found in his cubicle smoking *charas* being then in a dazed condition, a quantity of *charas* was also found in his room. He had, as was discovered, obtained this *charas* from the private servant of another patient a sirdar of good family. Following this bout of *charas* smoking he became acutely maniacal, being violent noisy and destructive. He remained thus for nearly three weeks and then gradually recovered. He is quite sane at present, works well, but is an expert in the art of mendacity.

CASE 3—A THIRD REOCCURRENCE OF THE DRUG HABIT FOLLOWED BY IMPERFECT RECOVERY

In Major Ewens' series, this is No 66 and the case is also noted in the text of his article. His two previous admissions are there recorded and also his own concise history of his drug taking habits. From April 1903 until March 1905 he was known to have not again resorted to *bharg* and to have followed his trade in the city here. On the 21st April 1905 he was admitted in a state of furious mania. He was extremely restless very noisy shouting and singing constantly the choicest of abuse he had destroyed all his clothes he dug with his fingers huge holes in his cell into which he could disappear bodily, and he is not a small man. He attempted to extract the bricks from the partition walls of his

cubicle, and this too with a horrible gangrenous finger which eventually dropped off and which could not be dressed but was treated by the patient with smearings of filth. He was also extremely filthy with his excreta. With varying acuteness this state lasted for about four weeks, when he began to recover allowing the stump of his finger to be dressed and becoming generally cleaner in his habits. In June he had, without discoverable cause, another attack of acute mania lasting about four days. Improvement followed this, but it has never been perfect, and his previous condition has not yet, ten months after his attack, been attained. Although he can talk sensibly to a certain degree, he is in a state of foolish exaltation, constantly making unreasonable requests, asking for bicycles &c. His memory is very defective and his speech childish. He has become very fond, when he gets the opportunity, of attiring himself in a fantastic manner, being particularly keen on pagnis of grotesque design.

CASE 4—CHRONIC MANIA FOLLOWING PROLONGED INDULGENCE IN *Bhang* and *Charas*

H N L, aged 30, a Brahmin employed in the Railway Mail Service was admitted on the 11th of April 1905. He gave a history of having drunk a pice worth of *bharg* daily for eight years along with others and also of having smoked *charas* intermittently for two years. His motive was to make himself more fit for his work. His memory was, when he was admitted, less affected than these cases usually are, and by interrogation a coherent account of his past life was obtained from him which was subsequently corroborated by his father and friends. His father stated that the son had become mentally altered four months prior to admission and that, having threatened his wife and mother-in-law, they left him. He was also found at the Lahore station in a state of mania and was brought to the Asylum. On admission he was in a state of great exaltation and excitement and was evidently well pleased with himself. He talked in a loud sonorous voice bursting out at the end of every sentence into a fit of exaggerated laughter, which lasted for a minute or more. He exhibited delusions of wealth and position. He has remained in this condition for about 10 months, being at times more communicative than at others, but being easily aroused into a foolish declamation of his powers interpolated with much amusing laughter. He is extremely proud and is solitary in his habits. His physical health remains good, but he is mentally deteriorating.

II—ALCOHOLIC INSANITY

As far as the records of this Asylum would indicate, "Alcoholic Insanity" following the consumption of indigenous liquors apparently does not occur. In very few of the patients' histories is it mentioned as a possible factor, but the exceedingly imperfect and perfunctory drawn-up records which we receive with our patients are possibly to blame for this. When it is noted it is generally in combination with *bharg*, *charas* or opium. But as every one is aware, indulgence in native liquors is confined to certain races and castes and is moreover generally employed by the members of these at periodic festivals. Among the better class of natives and also among those castes from which domestic servants are drawn there is, I think, an increasing tendency to the drinking of European spirits and wines. I have met with recently two instances of insanity in native gentlemen of position in which the drinking of brandy and whiskey was without doubt the chief cause of their mental deterioration.

There are at present in this Asylum two patients whose mental condition has been attributed to alcohol. I append details of these cases. In the first case which I record there is considerable doubt whether the man was ever actually insane, and the probability seems to be that he was only acutely intoxicated at the time he committed the offence of which he was found guilty. I have diagnosed him as a case of *mania a potu*, for I consider that he corresponds to the cases which have thus been described. The second case is one of delusional insanity following the drinking of brandy. In all its characters this case closely resembles chronic alcoholic insanity of that variety which is seen in England.

CASE 5—MANIA A POTU

K. Z., a Dogra, aged about 32, a native of Kangra, was admitted here on the 3rd of July 1904 as a criminal lunatic. He is a sickly looking weak minded young man, and it was shown at his trial that he was easily affected by small amounts of alcohol (he confesses to one to three chittacks of native liquor) and that he was not infrequently the worse of these. During such a bout he set fire to his neighbour's rice store, was arrested and was tried, but was, on the strength of the above evidence, acquitted and remanded to the Asylum pending the orders of Government. If sufficient security could be obtained for him he might be discharged to the care of his friends. He has never exhibited any sign of insanity beyond being childish and simple in his manner and speech.

CASE 6—DELUSIONAL MELANCHOLIA OF ALCOHOLIC ORIGIN

M. L., aged 28, a Mussalman shop keeper, was admitted on the 18th of January 1905. His father died about 6 years ago and left him rather badly off but with sufficient funds to open a small shop in Lahore. His habits, however, became dissipated and his business failed. For two years he had been drinking brandy which he bought in the bazar, by the half bottle at a time.

When admitted he was sullen and dejected, but his memory and intelligence were but slightly affected. He presented distinct evidences of his debauches in the tremulousness of his tongue and hands. He was very destructive and tore his clothes and his bedding. He exhibited extraordinary delusions of persecution, the chief being that certain people whom he called "Afeem Saltas" came at night and took "a plan (*nakhra*) of his inside from his inside." He has improved to a certain extent since admission. He is not destructive and his delusions are not persecutory in character but are now of disease. He talks foolishly and incoherently, chiefly about these imaginary ailments. At times he is better and works sensibly, at others, he is more dejected and irritable.

III—A CASE OF ACUTE DELIRIOUS MANIA

In this somewhat extraordinary case alcohol was a prominent factor as far as the first attack of mania was concerned. While suffering from this he was brought to the Asylum, and, beyond evidences of his recent alcoholic bout, there was nothing special about his attack. He then recovered almost completely, but on the fourteenth day, after the cessation of the acute symptoms of the first attack, he again developed acute mania, accompanied, this time, by fever and delirium. To this he succumbed. The following are the details of the case.

A. P., Goanese, aged about 25, employed in a Railway Refreshment Room, was admitted into the Asylum

on April 3rd, 1905. His friends stated that he had always been considered a foolish person, talking nonsense on occasion and having generally exalted ideas about himself. On the night of March 23rd, although a usually temperate man, he, assisted by a friend, drank about a bottle and a half of whisky and after this he became acutely maniacal. He was very excited, abusive and noisy. He broke a quantity of glass and plate. He became very filthy and for three days he refused his food. He was brought to Lahore and admitted, as stated, on April 3rd. He was then in a state of exaltation with delusions of being a great chief, of having served in great houses, of having visited the Pope at Rome. He said he had been sent to the Asylum by Christ, &c. He had a vacant look and was extremely restless and loquacious. He was very filthy, with excreta, and tore his clothes and bedding into ribbons. He was noisy at night and slept very little. Under treatment he daily improved, becoming cleanly in his habits respectful in his attitude and generally behaving quietly. He appeared to be reaching a normal state when, rather suddenly, on the night of the 21st, he again became acutely maniacal, destroying all his clothes and bedding, covering himself with filth and shouting noisily an incoherent nonsensical mixture of English, Urdu and Goanese. He continued this on the 22nd and on the evening of that date he had a temperature of 101. He was then talking incessantly. On the morning of the 23rd his condition had become critical his pyrexia continued and delirium was prominent. Towards evening he became almost unconscious, refusing and rejecting food by the mouth. Nutrient enemata and stimulants hypodermically were given as his pulse had become very weak. On the morning of the 24th after a night of energetic nursing on the part of the hospital assistant and a patient (Case No 1 of this series), he was more conscious recognising those about him and answering simple questions fairly rationally. He still exhibited pyrexia his temperature being 102. He continued thus all day but at night with a rising temperature (104.5 at 6 P.M.) he relapsed into a state of wild delirium. The pyrexia was treated by wet packs, he was stimulated in every way all night, but to no purpose. He became unconscious on the morning of the 25th, comatose later in the day, and died that evening at 9 P.M. No autopsy was permitted.

IV—GENERAL PARALYSIS OF THE INSANE.

General paralysis is, as yet, a very rare condition in India. It is so uncommon that out of about 1,300 insanes of both sexes admitted into the Asylum between January 1st, 1900 and December 31st, 1905, the only patient who exhibited any signs at all approaching that of the General Paralysis, seen in European and American Asylums, is the one whose history I give here. Unfortunately the patient was only in the Asylum for about a couple of months. His relatives, seeing that his condition had not become ameliorated, took him away at the end of this period. It will be noted that alcohol (Port Wine) was also a factor in this case but no history and no evidence of previous syphilitic infection could be obtained.

X. Y. Z., a native Christian, aged 33 was admitted on August 15th, 1905. His father was a Hindu fakir who became a Christian convert and who died many years ago. His mother is an apparently healthy woman, but is of a neurotic excitable disposition. He has two brothers who are said to be healthy.

He was a very studious youth, of solitary habit and was very much kept at home as a youth. He graduated as a B.A. of the University and became a teacher. Shortly after this he married a young school girl by

whom he had two children. These are reported to be healthy. The couple after marriage lived a secluded life. Both complained of ill health and got into the habit of dosing themselves with quantities of patent medicines and also indulging in Port wine. He was twice inoculated for plague and his friends say that a change was noted in him after this. Two years ago he was dismissed from his employment for falsifying registers and he had difficulty in obtaining other work. This increased his morbidity and mental and physical enfeeblement set in about a year prior to his admission. He became irritable and abusive towards his wife and later careless and stupid.

On admission his condition was as follows. A young man with a fatuous expression, eyes prominent and staring, smiles foolishly on being spoken to or being taken notice of, pupils pin hole, apparently equal and irresponsive to either light or accommodation, tongue tremulous, speech thick, slurring and slow, great difficulty experienced in pronouncing polysyllabic words. Recent memory for time and place very defective. Remote memory is not good and he has forgotten a great deal of his previous knowledge. He has delusions of exaltation, saying that he is a very great man—he always was very proud of his attainments—and that he has great wealth. His gait is ataxic and his limbs tremulous. He became steadily worse. His habits were filthy and he passed his excreta in his clothes or in bed. His speech became more blurred and thicker. Intelligence and memory at the end of three months had almost vanished. He could recognize his mother and clung to her in a childish way. Hematomata of both ears developed ten days before he left the Asylum. I have endeavoured to trace the patient but so far without success.

P.S.—Since the above was written I have learned (on 14th March) that the patient became progressively worse and died at his home on February 25, nineteen months after the onset of his illness.

NOTES ON THE PREVALENCE OF HILL DIARRHŒA IN MAYMYO

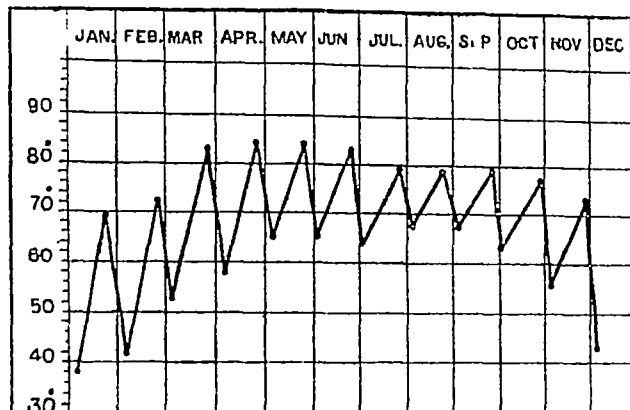
By O. C. BARRY, MAJOR, I.M.S.,

Civil Surgeon

MAYMYO is a comparatively new hill station, and has only been frequented as a health resort during the last five years. The town itself is situated on a plateau at an elevation 3,500 feet. The country round is hilly and covered with trees and thick grass jungle except on the

plateau itself where the ground has been cleared. The average temperature for the last 10 years is shown on accompanying chart.

AVERAGE MAXIMUM AND MINIMUM TEMPERATURE FOR THE LAST TEN YEARS



It will be seen the temperature is fairly equable in the hot months and the rainy season, but during the cold weather the difference between the maximum and the minimum temperature is very marked. During the winter months it is common to get a few degrees of frost from time to time, and though ice occasionally forms on the road side puddles snow never falls.

The geological formation in the vicinity of Maymyo is limestone.

The water-supply of Maymyo is obtained from springs at the head of a valley situated 5 miles from Maymyo. The ground through which the springs rise is marshy and overgrown with high reeds. During 1905 a bund was made across the valley and a reservoir thus formed capable of holding three months' supply of water for Maymyo. The water is conducted from the reservoir in iron pipes and distributed in the town by means of hydrants. The supply of water is copious, and, though hard, is otherwise of excellent quality, it has frequently been examined for mica but none has ever been discovered. An analysis of the water-supply taken last December is given below—

QUANTITATIVE								QUALITATIVE				
Parts per 100,000												
Total solids	Hardness			Chlorine	Ammonias		Oxygen absorbed Tidys' process	Nitrous Acid No. 2	Nitrates	Sulphates	Phosphates	Iron, poisonous metals
	Temporary	Permanent	Total		Free	Albuminoid						
25.2	13.03	2.60	15.63	0.4	0.001	0.001	0.039	NH	Absent	Absent	Absent	Iron present as hydrated oxide No poisonous metals present

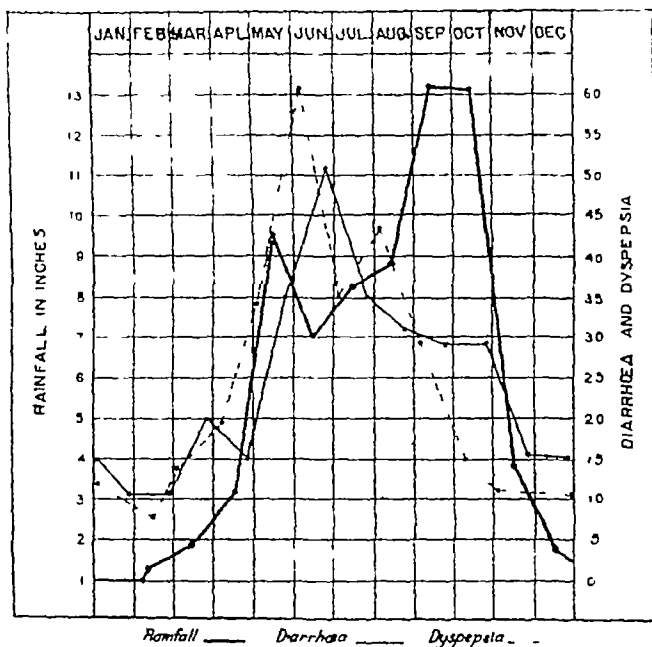
Physical Appearances — Colorless and transparent, no smell

MICROSCOPIC EXAMINATION OF SUSPENDED MATTER

Chiefly hydrated oxide of iron with vegetable debris, fresh water infusoria, crustacea and rotiferal also few in number —

Infusoria-protizon Vorticella, encysted and Rotiferae

TABLE SHEWING THE AVERAGE RAINFALL AND THE AVERAGE NUMBER OF CASES OF DIARRHŒA AND DYSPEPSIA FOR THE LAST FIVE YEARS



THE incidence of dyspepsia has been shown as, in my experience, this disease is, in a large majority of cases, merely an antecedent phase of hill diarrhoea, and which left untreated quickly runs on into the latter disease. The earliest stage is simply excessive flatulence, this increases into well-marked and severe dyspepsia which is soon accompanied by diarrhoea with typical motions.

The above represents the average rainfall in Maymyo for the last three years, and the figures for diarrhoea and dyspepsia are taken from the Civil Hospital records, being the average number of treated for the same period.

It will be seen that the curves showing the incidence of the diseases corresponds to the commencement of the rains very closely to that of the rainfall, in fact so closely that it is impossible to believe the rainfall cannot at this stage be unconnected with the cause of these ailments, a considerable number of cases occur in private practice and though these cases have not been included in the above chart, they frequently take place in an exactly similar manner. As far as Maymyo is concerned, visitors begin to come up from the plains at the end of March, and continue to do so through April

till the station is at its fullest during May and June, a considerable number leave for July and August, again returning at the end of this month to escape September and October, two of the unhealthiest months in Burma in the plains.

It will be noticed that the curves of the diseases follow the rainfall curve very closely till the end of May when, though the rainfall diminishes somewhat, the number of cases of illness goes on increasing in a marked fashion during June. The numbers then commence to fall, at first rapidly then steadily to the end of the year, on the other hand, the rainfall rises steadily to its highest during September and October, the two wettest months in Maymyo.

The commencement of the rains thus is the period with which we have most concern.

The rains break in Maymyo usually about the 15th to 20th of May, up to then the rainfall is insignificant and due to passing storms. The break of the rains is usually stormy and several very heavy falls of rain occur, but as the earth is parched and dry, a very large quantity of moisture is at once absorbed, and it is not till June that the hillside rivulets run full, bringing down in their rush the accumulated vegetable debris of the winter and hot weather.

As soon as the rains commence in Maymyo the new-comers begin to suffer—many from the so-called hill diarrhoea but a large number also from flatulent dyspepsia. Permanent residents in Maymyo however suffer little or not at all. This is a very marked feature of the disease and well illustrated in my own case. The year of my arrival in Maymyo I suffered very severely from hill diarrhoea during June and July, but since that time the onset of the rains in succeeding years has been unaccompanied by any such symptoms.

The onset of the diarrhoea is frequently quite sudden, and in these cases a definite history of exposure to cold or rain is almost always forthcoming. As an example, after a dance given at a private house during June, where, owing to the smallness of the rooms and to the night being fine, many of the guests sat outside in the garden between the dances, a large number of the ladies were attacked with diarrhoea during the next 36 hours. Again, amongst new-comers from the plains a very definite history of chill from wearing unsuitable clothing is common. Still, chills at other times of the year do not produce diarrhoea with such regularity, and supposing a chill is the immediate cause I feel certain that other predisposing causes must be more prevalent at this time of the year than at others. On the other hand I have seen patients attacked by hill diarrhoea who were in bed at the time and had been in bed for some weeks, and in whom the chance of catching a chill was very unlikely, though the nature of the illness which necessitated their stay in bed had undoubtedly diminished their powers of resistance.

to disease. It thus appears, that at the commencement of the rains some general cause is at work irritating the alimentary tract and predisposing it to attacks of diarrhoea.

Colonel Crombie in his article on the treatment of hill diarrhoea in the *Indian Medical Gazette*, May 1892, states children are almost completely exempted from this disease. This certainly has not been my experience, and though the number attacked is proportionately less than that of adults, it is not very markedly so. Again, in this same article the author states that cases begin to appear before the rains set in; this is not the case in Maymyo, at any rate as far as hill diarrhoea is concerned, it is true the hospital figures show an increase during March and April, but this I attribute to the influx of visitors, both Native and European, the increase is small and the diarrhoea and dyspepsia are not of the nature met with later in May and June. It is after several heavy falls of rains have occurred that the cases begin to come, and then they come with a rush.

The disease after the first influx of cases in May and June becomes markedly less frequent though remaining somewhat prevalent through the rains till the end of October. It is remarkable however that the second influx of visitors in September and October produces no impression on the disease curves, and it is my experience that visitors at this time do not suffer to any marked degree. Taking into consideration how closely the prevalence of diarrhoea and dyspepsia is associated with the rainfall at the onset of the rains, I cannot help thinking the cause of the disease will be found in the water-supply. Unfortunately the necessary examinations of water month by month have not been completed, and so I am unable to give any evidence at present in support of this view. I trust however a systematic analysis of the water, together with observations of the effect of the new reservoir, may throw some light on the causation of this obscure disease. The reservoir, I may mention, is protected from storm-water, and by holding three months' supply will prevent any great disturbance in the quality of the water at the commencement of the rains.

MEDICAL CASES

BY GANESH RAMCHANDRA DAS,

Dharwar

I BEG to forward herewith two cases of snake-bite treated with Pot. Permanganatis and one case of athetosis of the whole body, for favour of publication in your popular magazine.

1. Tumaji Martand Padki, a clerk in S. M. Railway office, Hubli, was bitten by a snake and was admitted into this dispensary on 12th June 1904. He was about 21 years of age, of strong constitution, and was brought to the dispensary after fourteen hours from the introduction of the poison into the body. The bite

was situated on the tendo-achillis at its insertion in transverse direction, and about one-fourth inch long and half inch deep. The tissues in the surrounding part of the bite were of greenish colour. There was much swelling on the whole leg, extending up to the inguinal region. A tight ligature was tied round the leg below the knee-joint.

Symptoms on admission—Pulse 80 per minute, feels exhausted, pain in the whole leg, bowels not moved. On the 17th June 1904, night, he had profuse perspiration, disturbed sleep, free motion, felt exhausted excessively. On the 8th July 1904, he was discharged cured.

Treatment—Free incision was made into the bite to promote bleeding and then Liq. Potass. Permanganatis solution was applied. To husband the strength of the patient a mixture containing Brandy, Spt. Ammonia Aromat., &c., was given for a few days.

2. Bastappa Rayappa, Native Christian of Tumrikop, aged about 18 years, was bitten on the 1st May 1905. On admission he stated that he was bitten by a snake which was not seen by him. Just after the bite he fell down senseless on the spot and was carried home by his friends. Only poultices were applied before bringing him to the dispensary, and a country medicine was rubbed to the tongue and put in to the eyes, after which he came to his senses.

Condition on admission—Was a young, robust man, had two marks on the heel of the left leg, situated one upon the other half an inch below the ankle joint, they were one fourth inch apart from each other and resembled a pin's head in size placed thus * *

There was swelling up to the knee-joint and severe pain, unable to walk.

The treatment was free incision into the bites to promote bleeding, and dressing of strong solution of Potass. Permanganatis applied, the patient recovered after thirteen days and was discharged cured.

3. Ningangawda Benkengawda of Sastikop, aged about 30 years, of strong constitution, was admitted into this dispensary on the 20th April 1905, for movement of muscles all over the body.

Previous history—He stated that about one month ago he had rheumatic pains in all his joints, therefore he took some country medicine, also he had swelling of the lymphatic glands all over the body, suffered from syphilis and had burning pain at the time of passing urine.

Condition on admission—Pain in the lower extremities from the hip joint so severe as to make him unable to walk. Severe pain at the umbilicus and swelling on the hypogastric region, profuse perspiration on the whole body and severe chills at the same time. Temperature normal, said he had no sleep at all for three months.

Each muscle of the body, especially of the extremities, were seen moving under the skin, even the muscles of the fingers and toes were

on constant movement. The movement was deliberate and constant, and calm, like trotting of a bud, and visible to the eye under the skin, fibres of muscles in portions were moving. On the third day of admission his temperature rose to 103° , pulse bounding, had tendency to scratching of the whole body, after which the upper layer of the skin peeled off like a covered *dhotti* or cloth, should come away with the nails.

Treatment—Castor oil was given at first with the intention of removing the poison from the systems which acted freely and had three motions. Then Quinine, Iron, Nuxvomica and Arsenic, were given in mixture. Potass Bromide and Morphia draught was given at bed time to produce sleep, but to no effect, the patient left the dispensary of his own accord. I think this case to be a case of Athetosis of the whole body which is rarely found in the practice.

4. As for the treatment of plague published on page 107 of the *Indian Medical Gazette*, 1904, I am glad to inform you that 50 per cent recoveries were recorded. The cases in which delirium supervened proved fatal, among the cases recovered all had buboes, but very few of them supplicated. More detailed information will be supplied if required.

TEN DAYS' PIGMENTARY FEVER OF BENGAL

By R. COBB, M.D.

LIEUT. COLONEL, I.M.S.,

Civil Surgeon, Midnapore

I HAVE ventured to give the above provisional name to a "fever" which, although very prevalent in this part of India, has not hitherto been described.

It is characterised by continued fever lasting from eight to ten days, occurring in the hotter months of the year, and by the presence of a peculiar pigmentation of the face which follows the febrile attack.

This affection first came under my notice in Monghyr in 1887, since then I have seen a large number of cases in the Districts of Hooghly, Burdwan, Dacca, Backergunge, Patna, Darjeeling, Midnapur, Singhbhum, Balasore and in Calcutta, and I have no doubt they are to be met with everywhere in the Province, and probably in many other parts of India. They are indeed so common that it is only necessary to examine the prisoners in any of the jails, batches of coolies, or bodies of police constables, to find numerous examples of those who have suffered, for they are easily recognized by the peculiar pigmentation of the face.

Season of Prevalence—Nearly all the cases I have seen have occurred in the hot months of the year, i.e. from May to October.

Symptoms—The onset of the disease is sudden, the symptoms being nausea, vomiting, intense frontal headache and a temperature which rises

to 103° and 104° . It usually seems to occur in persons who have been exposed to great heat. The pyrexia lasts from eight to ten days and is continuous in character.

The Pigmentation—This is quite pathognomonic and consists of a dark brown discoloration of the skin over the malar bones and on the bridge of the nose. It occupies the exact situation and is of the same shape as the bat-shaped redness of the skin seen in Lupus Erythematosus. The peculiar shape and symmetrical position of these patches are quite characteristic and serve to distinguish them from the pigmentary patches which are found in malarial cases.

These bat-shaped patches do not appear at once on the cessation of the fever, but are first seen after an interval of one or more weeks. They then gradually get darker and may remain with out change for months. After six months or so, they begin to fade and finally disappear in a year or eighteen months.

Diagnosis—The sudden onset of the fever, the course of the temperature, together with the subsequent pigmentation of the face distinguish this disease from mild *Enteric Fever*. The pigmentation also serves to separate it from *Febriola*. The diagnosis from *Malarial Fever* is easy, for the malarial parasite is not found in these cases, and the pigmentation of the face is quite different from the black patches sometimes seen in malarial cases, moreover, the attack is not recurrent, and the liver and spleen are unaffected.

The following case is a typical example of the disease, and has recently been under my observation in the Jail Hospital. I have selected it for publication because I specially noted the absence of the pigmentation in the first few days of the illness, and its gradual development after the first week—

Dyal Khya was admitted into the Jail Hospital for fever on the 28th December 1905. He had previously been engaged in drawing water from the well and had been much exposed to the sun while doing so, he stated that he had felt the heat very much, and in the evening of the 25th December, an intense frontal headache and great heat of body came on, he, however, worked all day on the 26th, although he still suffered from headache, fever and nausea. On the 27th December he was placed under observation in hospital and was admitted into the ward on the 28th December.

On admission his temperature was 100° . Pulse frequent, he vomited twice and complained of intense frontal headache. There was no enlargement of the liver and spleen. A microscopical examination of the blood shewed the absence of the *plasmodium malarie*. There was no pigmentation of the skin on the nose or malar bones.

In the evening the temperature rose to 103° and he again vomited.

The symptoms continued the same during the 29th, 30th and 31st December, the temperature ranging between 100° in the morning and 103° in the evening

On the 1st January the pyrexia began to decline and the temperature became normal on the 2nd January 1906. On this day sudamina and a faint pigmentation were first noticed on the skin of the nose and malar bones. The sudamina gradually disappeared, but the pigmentation grew more defined and darker day by day, until it became well defined patches of a chocolate brown colour on the bridge of the nose and on the malar bones, each of the latter patches being about the size of an 8 anna piece

The pathology of this fever is rather obscure. I have made several microscopical examinations of the blood with negative results so far. It seems to me however, that exposure to heat plays a great part in the causation of the disease and it may be a mild form of thermic fever.

I append a tabular statement giving particulars of a few cases, which has been prepared by Civil Hospital Asst., Ananda Chandra Gangopadhyay, of the Midnapur Central Jail, who has also assisted me in the collection of the cases and in the microscopical examination of the blood. I hope that any medical men who may come across similar cases will put their experiences on record.

Serial No	Name	Age	Caste and Sex	Occupation	Residence	Time of attack	Duration of disease	Symptoms	REMARKS
1	Baidya Nath Maity	29	Hindu Male	Labourer	Midnapur	Aug	10 days	Headache, vomiting, pain all over the body, bowels regular, thirst, fever continued for 10 days	All these cases had the characteristic pigmentation of the face
2	Balabanta Das	26	Do	Do	Do	July	9 days	Headache, vomiting, pain in both upper and lower extremities, bowels regular, fever continued for 9 days.	
3	Gurish Katal	30	Do	Do	Balasore	Do	8 days	Headache, vomiting, pain in the waist and spinal column, bowels regular, fever continued for 8 days	
4	Kunja Manghi	28	Do	Do	Midnapur	Aug	8 days	Headache, vomiting, pain in the body, bowels regular, fever continued for 8 days	
5	Manu Santhal	27	Other Male.	Do	Singbhoom	May	8 days	Headache, vomiting and nausea, pain in the body, bowels free, fever continued for 8 days	
6	Dyal Kha	32	Hindu Male	Cultivator	Midnapur	Aug	8 days	Headache, vomiting, bowels regular, fever continued for 8 days and pain in the body	
7	Tipoo Santhal	44	Other Male	Do	Do	Do	10 days	Headache, vomiting, diarrhoea, fever continued for 10 days and pain in the body	
8	Chundra Prodhan	35	Hindu Male	Labourer	Do	Do	9 days	Headache, vomiting, bowels regular, fever continued for 9 days and pain in the body	
9	Jibon Dome	36	Other Male	Do	Do	July	10 days	Headache, vomiting, bowels regular, fever continued for 10 days and had pain in the back	
10	Dinoo Har	38	Hindu Male.	Cultivator	Do	June	8 days	Headache, vomiting, bowels regular, fever continued for 8 days and pain in the body	
11	Chandra Rout	45	Do	Milkman	Balasore	July	8 days	Headache, vomiting, bowels regular, fever continued for 8 days, had pain in the lower extremities	

Serial No	Name	Age	Caste and Sex	Occupation	Residence	Time of attack	Duration of disease	Symptoms	REMARKS
12	Damoo	55	Hindu Male	Cultivator	Singbhoom	Aug	10 days	Headache, vomiting, bowels free, fever continued for 10 days, pain all over the body	All these cases had the characteristic pigmentation of the face
13	Sheik Allabox	30	Mahomedan Male	Labourer	Midnapur	July	10 days	Headache, vomiting, bowels regular, fever continued for 10 days, pain all over the body	
14	Sardar Kal	22	Other Male	Do	Do	Sept	8 days	Headache, frontal region, vomiting, fever continued, for 8 days	
15	Ghostia Samoo	20	Hindu Male	Do	Do	Do	10 days	Headache, vomiting, bowels not regular, fever continued for 10 days	
16	Bishunath Ray	40	Do	Service	Do	Aug	10 days	Frontal headache, bowels regular, fever continued for 10 days, vomiting	
17	Balaram Das	28	Hindu Male	Cultivator	Do	Oct	10 days	Frontal headache, vomiting, bowels regular, fever continued for 10 days	
18	Sakhi Lal Sonar	26	Do	Labourer	Do	Do	8 days	Frontal headache, vomited, bowels constipated, fever continued for 8 days	
19	Mohendra Ray	23	Do	Cultivator	Do	Sept	10 days	Headache, vomiting, bowels regular, loss of appetite, fever continued for 10 days	
20	Bowool Das	42	Do	Do	Do	July	10 days	Headache, vomited, bowels regular, fever continued for 10 days	
21	Shombhu Aii	38	Do	Do	Do	May	8 days	Headache, vomited, bowels regular, loss of appetite, burning on the body, fever continued for 8 days	
22	Kissen Manjhi	32	Do	Do	Do	July	8 days	Headache, vomited, bowels regular, fever continued for 8 days	
23	Dinoo Ari	30	Do	Do	Do	Do	8 days	Headache, vomited, loss of appetite, bowels regular, fever continued for 8 days	
24	Gopal Tanti	28	Do	Do	Do	Do	8 days	Headache, vomited, fever continued for 8 days	
25	Jibon Dome	27	Do	Do	Do	Sept	10 days	Frontal headache, vomited, fever continued for 10 days	
26	Ganga Ram Bhuia	34	Do	Labourer	Do	Nov	9 days	Frontal headache, vomited, bowels regular, fever continued for 9 days	
27	Sosi Ari	32	Do	Cultivator	Do	Oct	10 days	Headache, vomited, bowels regular, fever continued for 10 days	
28	Chandra Dalai	34	Do	Do	Do	May	10 days	Headache, vomited, bowels constipated, fever continued for 10 days	
29	Baikunta Hazra	35	Do	Do	Do	Oct	8 days	Headache, vomited, burning on the body, loss of appetite, fever continued for 8 days	

RELAPSING FEVER IN THE 109TH INFANTRY

By W H COX,

CAPT, I M S,

Medical Officer

ON the 1st December 1905, a number of recruits from Ahmednagar district arrived at Ahmedabad to join the 109th Infantry. They were placed in the segregation camp for 10 days before being allowed to enter the lines. On the 22nd December 1905, seven of these recruits were admitted to hospital with a temperature and were sent to the malaria ward, which has its doors and windows gauzed in. Owing to the peculiar similarity of the temperature readings of these seven men then blood was examined with more than the usual interest in the regimental laboratory, when instead of malaria parasites being found, the spirillum obermeieri was observed in every case. The cases were accordingly isolated and then bedding and the quarters they had occupied were disinfected. Meanwhile a ward orderly who had been attending to them caught the infection and, on 13th January 1906, was admitted into hospital with the disease in a severe form, his spleen grew very large, very tender and soft, and his liver the same, though to a less extent, he was unconscious for two days but ultimately rallied and picked up strength until the first relapse occurred, and this carried him off. The spirilla in the blood were exceedingly numerous.

While this ward orderly had been attending on the original relapsing fever cases before they were diagnosed as such, he had also attended to a convalescent pneumonia patient and this man on 2nd February 1906 developed the disease and went through a typical course. On this man's case being diagnosed it was decided to consider the hospital as an infected spot, accordingly the whole hospital with its staff, patients and personnel were quarantined under a military guard, a quarantine camp was formed some distance away and the hospital buildings evacuated and disinfected with all their furniture, and it is hoped that the spread of the infection will thus be stopped. There is no doubt the last two cases were infected by contact and not by ticks (*Ornithodoros moubata*) nor by bed bugs (*Cimex lectularius*).

Treatment—There being no known specific drug for the complaint it was considered that as another spirachæte (*viz*, *s. pallida*) was affected by mercury, this drug might be tried in this fever, which was done. The last two cases were severe in character and received in addition strychnine and tonics. It was remarked how suddenly the swollen spleen and liver subsided on the temperature falling to normal.

A Mirror of Hospital Practice.

MEDICAL CASES *

By C H L MEYER, M D,

MAJOR, I M S, Bombay

(1) *Multiple Neuritis after (?) Influenza*

THIS patient, a young male Hindu, aged 24 years, was admitted for pains in the limbs and extreme muscular weakness. The weakness was so marked that he was not only not able to walk or stand, but could not even raise himself in bed from the lying-down position or sit up without support. The history given was that three weeks before he was one night attacked with fever, headache, cough, and runnings from the eyes and nose. These symptoms continued for two or three days, when he began to feel pain in the limbs and joints, formication in the hands and feet, and at the same time general loss of muscular power. These symptoms increased up to the date of admission. When first seen the patient was, as regards his muscular power, in the state already described. There was slight wasting of the muscles, and they were throughout the body very tender on pressure. There was no tenderness or thickening of any of the nerve trunks. The deep reflexes were absent, and a few only of the superficial could be elicited to a very slight extent. The heart rate was always quick, varying between 90 and 120 beats per minute in the lying-down resting position. There was no loss of sensation. Beyond a nervous excitability of manner and some formication and tingling in the hands and feet, there were no other symptoms present. The patient was treated with iodides, quinine, strychnia and cod-liver oil, and improved steadily but very slowly. He can now stand and walk, but is still weak, the pains, tenderness of the muscles and formication are gone, but there is no sign as yet of any return of the deep reflexes. The evidence in this case goes to show, I consider, that some toxin (?influenzal) circulating in the blood poisoned the very endings of, chiefly, the motor nerves in the muscles.

(2) *Three Cases of Intestinal Parasitism*

In two of these patients the parasite present was the *Ankylostoma Duodenale*. I have brought the cases forward to illustrate the remarkable contrast in the effects produced by the same parasite in different persons. The third case, one of *Ascaris Lumbricoides*, is typical of many similar I have met with in which marked fever has been produced by round worms.

Case (a)—A dull and stupid-looking Hindu youth was admitted into my wards on August 2nd, 1905. He gave the duration of his illness as seven months. He presented the usual symptoms

* Being a paper read at the Bombay Medical and Physical Society

of a marked anæmia. There was general œdema of the body, most marked in the legs and other dependent parts. The heart's action was weak and hæmic murmurs were present over the different orifices. The bases of the lungs were œdematous, and there was a slight amount of hydrothorax. The tongue was very pale and thickly coated. There was no vomiting or diarrhœa. The spleen was enlarged and hard and projected about two inches beyond the costal margin. The liver also was slightly enlarged. There was no albumen in the urine. A history of past malarial attacks was given. An examination of the stools showed the presence of numerous *Ankylostoma* ova. In a blood film the eosinophil leucocytes were increased to ten per cent. The temperature of this patient was usually normal or sub-normal, on one occasion only rising to 100° F. The treatment adopted was large daily doses of finely powdered thymol followed by aperients. After a three weeks' stay in the hospital he was discharged cured.

Case (b)—The second case of *Ankylostoma* occurred in a tall, lanky and emaciated Mahomedan lad, aged 18 years, admitted on the same day as the preceding patient. The history given was that of fever of 12 days' duration. Under observation in the wards he was found to be suffering from a very regular type of fever. Each day without fail his temperature began to rise soon after noon, reaching a maximum of between 103° and 105° usually at about 6 P. M. No rigour or chilliness preceded or accompanied the fever. During the night the temperature always fell slowly and reached the normal at about 8 A. M. It then remained normal or sub-normal until about noon, when the next daily rise commenced. The tongue was thickly coated with brown fur in the centre and inclined to be dry. The spleen was enlarged and could be easily felt. There were bronchitic signs in the chest, and about an ounce or two of mucopurulent sputum, often streaked with blood, was coughed up daily. There was no œdema, marked anæmia or diarrhœa. Phthisis was first suspected, but no tubercle bacilli were present in the sputum. Blood films were next prepared and examined for malarial parasites but with a negative result. During then examination, however, it was noticed that the eosinophil leucocytes were increased, and this led us on to examine the fæces microscopically. They were found to contain numerous *Ankylostoma* ova. The patient was treated with thymol and in ten days his temperature fell to normal and he was discharged cured a few days later.

Case (c)—The third patient, a Hindu lad of 18 years of age, was a case of round worms. On admission he complained of fever, headache, vomiting, pains all over the body and great weakness. He stated that these symptoms had come on rather suddenly four days before. He was very collapsed and weak, vomiting frequently, and on one occasion brought up a

round worm in the vomit. He was found to have fever of an irregular character, the temperature rising frequently to 104° and 105° and then falling again to normal or sub-normal. There were no rigours. The spleen was slightly enlarged and the tongue thickly coated with moist white fur. On several occasions he became so collapsed after vomiting that stimulants had to be freely exhibited. He was treated with a mighty dose of santonine followed by a dose of castor-oil in the morning, and passed 40 round worms in the first week of his stay in the hospital. The temperature at the same time fell to normal and he made a rapid recovery.

NOTES ON A CASE OF FUNGUS DISEASE OF INDIA (MYCETOMA OR MADURA FOOT)

BY K. PRASAD, M. B.,

MAJOR, I. M. S.,

Civil Surgeon, Shacbo.

WHILE on tour in my district I heard from the thugyi (headman) of a village that there was a man with a bad foot who had been confined to bed for the last ten years. I told him that I would gladly go and see him if he would show me the house. He took me to the house and I saw a middle-aged Burman, sparsely built and very much emaciated, seated on the floor. He showed me his right foot which was very much swollen, almost in line with the leg, and riddled with sinuses. There was also an offensive smell from the discharge, but he did not complain much of pain. The appearance at once suggested to me that the case was one of Madura foot. On enquiring into the previous history, the man told me that he was a cultivator. About ten or twelve years ago, while working in his fields, the outer side of the right foot was accidentally injured by a bit of wood which lay imbedded in the ground. The injured part soon swelled, and the swelling extended to the whole foot. Later on, a discharge of blood and pus began to come out. He applied some Burmese medicines which seemed to have stopped the discharge a little for a while, but the swelling remained and continued to give him a lot of trouble. His village is only about seven miles from Yeu, where there is a hospital, but neither he thought of it himself nor any one suggested to him about it. He had therefore taken no European medicine internally or externally during his suffering of ten or twelve years. He gave me no history of venereal, and there was nothing particular about his family or village. His emaciated look did not give much hope of a successful operation, but as this was his only chance, I brought him to the hospital, and as not only the foot but life itself was a burden to him, he readily consented to have the leg removed. On 11th September I performed the operation and now the man, to his great joy, trots about with the help of a crutch. On careful examination of the leg, I

noticed that the disease had extended far beyond the ankle, and the skin presented the peculiar mammillated appearance close up to the middle third. The tibia was therefore removed at the seat of election, and the flaps formed after Fara-bœuf's method.

Anatomical characters On examining the parts with probe I noticed that the sinuses were running in all directions and the probe would run from one side to another with ease. On dissection the interior of the foot was found to be covered by a series of shortly defined cavities which communicated with one another. These as well as the sinuses were lined by a shining membrane and filled with gelatinous glairy fluid of yellowish colour and with spheroidal bodies like fish-roe. There was fatty degeneration of the tissues round about these cavities and most of the structures appeared to be blended into one indistinguishable mass. These morbid masses were very prominent in the subcutaneous tissue and in the pads of fat lying around the muscles and tendons, the latter being quite intact. The bones had become very soft and spongy and could easily be divided by a common knife. The interior was also filled with morbid material.

Remarks—There is perhaps nothing unusual about the case. But his emaciated condition before the operation and his rapid recovery and being able to walk about within a month after the operation are points of surprise to me. Another thing which attracted my attention was complete absence of glandular enlargement. An ordinary hurt to the foot causes a swelling in the groin, but in this case the disease lasted for over ten years, and not a single lymphatic gland was affected. The case clearly belonged to the pale variety of the disease.

MEDICO-LEGAL NOTES FROM ALIPUR

By F. J. DALEY,

Assistant to Civil Surgeon, 24 Parganas

THE following extract of cases from the Alipur Morgue may be of interest to your readers from their rarity—

A Hindu male, aged about 75 years, was brought by the Police for *post-mortem* examination on the 3rd September 1902 with the following history—

"He had been ailing for months past from fever and dysentery. He was found hanging by a piece of cloth tied round his neck."

The valves of the heart were found thickened and atheromatous, the peritoneal cavity contained about 3 pints of watery material, the liver weighed 27 ozs, it was hard, tough and contracted. The spleen weighed only 140 grams and appeared like a flattened piece of dough and measured about 1 inch long, $\frac{1}{2}$ inch wide and $\frac{1}{3}$ inch thick. All the other organs were practically normal.

Death was due to hanging.

No 2 CASE

A Hindu male aged about 60 years was sent to the morgue on 28th December 1903 with the following Police report—"Deceased was walking along the road in company with another person when he complained of pains in his chest, he sat down and shortly after expired."

The stomach was found to be considerably enlarged and walls thin. It measured 15 inches \times 9 inches and contained by weight 3½ lbs of undigested rice and food stuff (Dal and Sag). The heart with contents weighed 1 lb, when cleaned 13 ozs, the substance and valves appeared normal.

The spleen weighed 7 ozs, it was congested and granular in appearance with numerous sago-seed-like deposits. The other organs were normal.

Death due to cardiac failure from the effects of a dilated stomach on a hypertrophied heart.

Cyanide of Potassium poisoning

A Hindu female, aged about 26 years, was brought to the morgue for examination on the 12th June 1905 with the following Police history—

"The deceased had a quarrel with her husband, no marks of violence on the body."

On examination the lungs were found intensely congested, as also the liver and kidneys. The substance and valves of the heart were normal and both sides empty. The stomach contained about 2 ozs of dark treacle-like material which gave off no particular smell. The coats of the stomach were considerably thickened, and the mucous membrane was of a dark brick red colour, intensely congested throughout, with here and there irregular patches of erosion.

The blood vessels of the stomach were very prominent. The tongue was covered with a brown fur, and the papilla were very prominent.

The gullet was congested especially at its lower third, and the duodenum for about 6 inches showed the same characters as the stomach.

Death due to excessive ganja-smoking?

Hindu male aged about 36 years was examined at the morgue on the 28th December 1899. The Police history was as follows—

"The deceased was a heavy ganja-smoker, he retired to sleep at about 12 midnight and was found dead the following morning."

On examination the scalp tissues and membranes of the brain were found congested. The vessels of the pia mater were engorged, and on section of the brain substance the puncta were numerous, prominent and dark-coloured, the lateral ventricles contained a large quantity of sanguinous fluid. All the other organs, including the lining membrane of the stomach, were found congested. The case is recorded as having been due to apoplexy which may have been induced by the excessive use of ganja.

Indian Medical Gazette.

APRIL, 1906

THE GOVERNMENT OF INDIA, THE MEDICAL SERVICE, AND THEIR CRITICS

THE *Journal of Tropical Medicine* for February 1st, 1906, contains an article entitled "The depreciation of the attraction of the Indian Medical Service and its remedies." As most of our readers probably do not see that journal, we reprint this article at length elsewhere. The whole tenor of the article is to find fault with the present conditions of service in the I M S, and, as we think that this attitude is unjustified, and the complaints exaggerated, we offer some comments upon it.

The writer states that the Indian Government, when Major Ross made his great discovery, first obstructed his work, and then, after according some tardy and grudging support, made no efforts whatever to retain the services of the brilliant investigator it found to its hand within the ranks of its own service. We do not know that Major Ross has himself ever made any public complaint of his treatment by the Government of India. But his admirers have not been slow to point out the inadequacy of the reward bestowed upon him, we think with very slight cause. Major Ross earned a great reputation by his work in India, and has, within the last five years, received the Companionship of the Bath, the Fellowship of the Royal Society, the Nobel prize, and an important appointment in England. It is true that the C B alone was directly bestowed upon him by Government, but all the rest are indirectly due to the much-abused Government of India. In the "*Lays of Ind*" a disappointed officer makes a bitter complaint against Government "they would not give me any thing, but pay and idleness." These are exactly what the Government gave Major Ross for many years, the "idleness" of very light duty as Medical Officer to a native regiment, which afforded him the leisure to prosecute his researches, and to complete his great discovery, and the pay which enabled him to live in comfort while so doing. That Major Ross remained throughout almost all his service doing the comparatively unimportant (official) work involved in the charge of a native regiment was entirely

his own choice. Had he preferred to take up civil employ he would certainly have earned a great deal more money during his service, and would, if he had chosen to remain in India, have risen much higher than he actually did, retiring by his own choice at the earliest moment. But he would not have had the leisure for scientific research, he would not have earned the great reputation he now enjoys, and he would not have held the important appointment which he now fills. No man in recent years has shed such lustre on the service as Major Ross, but, though some have doubtless made more money, no man has, on the whole, done better for himself.

Another charge made against the Government is that only the other day thirteen excellent officers were passed over for promotion simply because they were too old. Apparently this refers to the selection of the present Director-General for the post he now holds, we cannot think of any other promotion to which allusion might be intended. If so, it is not clear how the number of thirteen was made out. The number of senior officers then superseded was nine, if the Bengal Service only is taken into account, nineteen, if Madras and Bombay are included. But, while several of the seniors then superseded might have filled the office of Director-General well enough, it is probable that not more than three or four of them were ever actually "in the running" for it, or had any chance of selection to fill the post. The object of this appointment was the selection of the very best man. Whether this object was attained or not it would perhaps be presumptuous in us to give an opinion, one way or the other. But at least this was the intention, and it can hardly be asserted that the intention has not been justified by the result. Surely it is somewhat inconsistent to complain in one paragraph that one officer has not been specially selected for promotion over the heads of his seniors, and a few lines lower down to make a grievance of the fact that another officer has been so selected, especially when the former had not, and the latter had, already given proof of his fitness to fill a high administrative appointment. The special qualities required for scientific research and for administration are not the same, and do not necessarily co-exist in the same individual.

We may mention, in passing, that an officer of five years' less service, and one much lower down the list, was, on the same day, promoted

to the Director-Generalship of the Army Medical Department, over a much larger number of senior officers. That appointment also has apparently been justified by results, it was certainly greeted with pæans of praise at the time. It can hardly be the case that one of these appointments was justified and the other was not.

The suggestion that higher pay, or a monetary bonus, should be given to successful candidates who defer entering the service in order to take higher degrees, also seems to us both impracticable and undesirable. The State lays down the standard which it requires candidates for its service to attain, and then sees that all come up to this minimum standard when they enter. Those who possess higher degrees stand a better chance of obtaining good appointments in India. They do not necessarily get such appointments, and we may say that they do not necessarily deserve them. It is not the possession of the higher degrees or diplomas which is of importance, but the use a man makes of the knowledge he has acquired. We know of cases where men entered the service with high and well-reputed degrees, but who never did anything afterwards and who were passed over for promotion. To pay such men higher rates merely because they came into the service with high honour degrees would be a very bad bargain for Government.

Major Ross himself is the most conspicuous example of the fact that the possession of high degrees, on entering at or near the top of the list of successful candidates, is no criterion of an officer's future success, or of his value to the State. He entered the service about the middle of a large batch (eleventh out of 22 we believe), and the only diplomas which he then held were the M.R.C.S. and the L.S.A., though, seven years later, he also took the public health diploma of the London Colleges. The M.R.C.S. is a good, sound diploma, as a test of fitness for practice quite equal, we believe, to a University degree. But few of its holders would claim that its possession entitled them to claim a higher rate of pay than their confrères.

The recent grant of accelerated promotion to Major does, to a certain extent, give a pecuniary bonus for good work, such as taking higher qualifications, being, roughly, equal to a grant of £100.

As regards the writer's advice to stick to military employment, we would recommend

our readers to think twice, and more than twice, before deciding to follow it. If they do so, leisure they will have, and on the whole (after the frequent transfers of the first few years), a pleasant life. So far the writer is right. But few have the energy (probably few have the mental powers) to spend their leisure so profitably as Ross. The end of that pleasant life is only too likely to be professional deterioration and, finally perhaps, supercession.

We cannot agree with the writer's statement that the civil branch of the service no longer presents any particular pecuniary advantages. In every province there are a number of appointments in which a fair amount of money is still to be made, and a few prizes which give a large income to their fortunate holders. Of course money cannot be made, in the I.M.S. nor in any other walk of life, without hard work. Equally of course the young surgeon entering civil employ is not likely to get such appointments at once, but must wait his turn, as his seniors have done before him. If he is a good man, or even a fair average man, his turn will come in time, if he is below the average, it will not come at all. Many civil stations are pleasant enough places to serve in, and one great advantage of civil employment is, that a man is far more his own master than he can possibly be in a military hospital. He has plenty of work to do, work both interesting and responsible, but so long as the work is fairly well done, the manner of doing it is in great measure left to himself.

That there will always be good average men forthcoming in sufficient number to fill the routine posts of the service is true, certainly there are plenty such in the service at present, both seniors and juniors. Indeed, we should say that the general average of the service never stood higher than at the present moment. Whether it is advisable that efforts should be made to attract men of exceptional qualifications is, we should think, very doubtful. A certain number of such men have always been among the candidates, and never perhaps has the number of them been so large as it is now. Certainly far more men who hold the higher degrees and diplomas enter the service now than was the case twenty to thirty years ago. That all, or even most, new recruits should be of exceptional merit is hardly to be desired. After all, four-fifths of the posts available are concerned chiefly with routine work of various kinds and

degrees, and the great majority of us must make up our minds to hold such posts throughout our service. It may well be true, as the writer states, that engineering firms find they cannot obtain a fitter for the same wages as a rivetter, but the firm which, on that account, paid all its riveters the wages of fitters would soon find itself in the bankruptcy court.

One point which, we would have expected the writer to have mentioned, is the need for considerably higher pay for men doing sanitary work, if it is desired to attract men to this important branch, and to keep them permanently in it. Officers are now expected to hold a public health diploma before they can be considered eligible for such appointments. Their pay, it is true, is somewhat higher than that of the regimental officer or civil surgeon in the ordinary line, but not sufficiently so to make these appointments attractive to the men best qualified to fill them. The sanitary officer does not reap the advantage either of the regimental medical officer's abundant leisure or of the pecuniary profit of the successful civil surgeon.

The writer objects to the present age limits and would substitute for them a term of service running up to 35 years for a Colonel and 37 for a Surgeon-General. Surely this would come to much the same thing. The point is not mentioned, but it would obviously be necessary to impose a maximum age limit on entering, say 28 or 30. It seems hardly judicious to lay down a rule that the man who enters at 22 should retire at 52 or 57, while he who enters at 28 should serve till he is 58 or 63. Of course some men age much more rapidly than others. One man may be prematurely aged at 40, another in full vigour at 60. But the man who enters at a later age does not necessarily last out longer; the probabilities are the younger man will be the more vigorous. And, if any hard and fast rule at all is to be laid down, it would seem that the present rules as to age limits are about as good as any that could be devised.

A century ago selection for promotion was unknown, and there were no age limits to a man's service. The three officers of longest service formed the governing body, the Medical Board, and might, and sometimes did, hang on until they died of sheer age and decrepitude. This system was not such a success that we would wish to revert to it.

On the whole, we think that the attractions of the service were never more evident than

they are now. The market value of the newly-qualified medical man may now be some £200 a year, having risen considerably in the last ten years, since the five years' curriculum was enforced. The Indian Government offers him 420 rupees a month, nearly double his market value at home. (Many of the men who are now Lieutenant-Colonels spent a year or more on 286 rupees a month.) This, too, simply as a beginning, with the certainty of increase of fixed rates at various lengths of service, and the possibility of an income considerably higher than his pay, furlough rules which are liberal, both as regards length of leave allowed and pay while on leave, and pension rules which are probably on the whole more liberal than those given to any other service in the world.

The service does *not* offer the great prizes, professional and pecuniary, which fall to the most successful men in a European capital, but then on the other hand it has no blanks. If the attractions enumerated above are not sufficient to induce men to enter the service, the majority of those who consider them insufficient will probably find, in the end, that they have gone further and fared worse. And, should the article which we quote below in any way help to keep out of the I M S the inveterate "grouser," who is the curse of every service in India, it will at least have done some good —

"THE DEPRECIATION OF THE ATTRACTION OF THE INDIAN MEDICAL SERVICE AND ITS REMEDIES"

No body of medical men have done more to advance our knowledge of tropical maladies than the officers of this ancient and honourable service, and its welfare is therefore of great public importance. In the early days contributions by practitioners in the Tropics to medical literature were evidently regarded by their brethren at home almost in the light of travellers' tales, or at any rate of no more than a curious interest to the general body of the profession. The establishment of tropical medicine as a distinct branch of the healing art may, indeed, be said to date from the establishment of a chair on the subject at Netley, to which a retired Indian medical officer, the late Professor Maclean, was appointed. Maclean was a man of exceptional ability, as well as a born lecture room orator, and his lectures and valuable systematic work on the subject soon elevated tropical medicine to a recognized position in the medical commonwealth. He taught amongst other forecastings of modern opinion, the value of the mosquito net in the prevention of malaria and the communicability of cholera through the agency of water, though it must be confessed that it never seems to have occurred to him that the efficacy of the mosquito net might be due to its efficiency in excluding mosquitoes.

From the therapeutic side, however, his book may to this day be consulted with the greatest advantage, and it is a pity that no new edition has been prepared, as this side of the question has been a good deal neglected in the more modern works on the subject. About the early eighties the service seemed to be neglecting to maintain its reputation, though the work of Carter, of Bombay, on spirillum belongs to this period.

The burning question of the day was, however, the etiology of cholera, and the conflicting interests of the time led to unbiassed research being placed beneath the cold shadow of official disapproval. The Indian Government quite rightly regarded quarantine as useless, but unfortunately fell into the error of believing that its adoption depended, not on the question of its efficiency and expediency, but on that of the communicability or otherwise of the disease. When keen and scientific officers recorded facts tending to prove communicability they were accused of "theorising", and deliberately ordered to delete the facts from their official reports so that a reputation for a weakness for research was about the worst a man could earn who desired to succeed in the service. The visit of Koch to India, however, tumbled the whole flimsy edifice, based on the *suppression* *veri*, about the ears of its authors, and what is more, demonstrated the inapplicability of quarantine, but the men who would have worked had packed away their microscopes in disgust, and it was some years before this blow to efficiency could be recovered from. The Indian Government had not, however, learned its lesson. It formally punished King, of Madras, for invaluable original work on the vaccine virus, and when Ross made his great discovery it first obstructed his work, and then, after according some tardy and grudging support, made no efforts whatever to retain the services of the brilliant investigator it found to its hand within the ranks of its own servants. Was there ever a better case for selective promotion?

There are signs, indeed, that matters are improving in regard to the promotion of research, but the man who should have been the honoured and rewarded head of that department has been lost to India to Liverpool's gain. To this day, however, the best advice that can be given to the would be recruit for the I M S, is as follows. Qualify at as early an age as possible. Do not waste time by taking up a resident medical appointment in your hospital, or in acquiring such useless lumber as an honour, degree, or a qualification in public health, but go up for the first examination that occurs.

As the keenness of the competition has a good deal diminished you will probably get in somehow, and your position on the list will have so little influence on your future career that six months' seniority on the list will avail you far more than the kudos of being highly placed in the competition. The truth of this will be especially apparent towards the end of your period of service. Only the other day thirteen excellent officers were "passed over" for promotion simply because they were too old. There was no other reason, for the thirteen included men holding most distinguished records, and who, moreover, were known to be *persona grata* with the authorities, who really had no choice in the matter.

Once in the service stick to routine work, preferably on the military side, as the civil branch no longer presents any particular pecuniary advantages, and you will have light, pleasant work, and serve in the pleasantest stations.

Above all, avoid all suspicion of originality or special ability in any particular direction, as it may lead to your being placed on "special duty," and when you return to the ordinary line of work you will find your self penalised, as if employment of the sort were an indictable offence.

No one who knows the service will deny the soundness of the above advice, and it further cannot be denied that the fact of the expediency of such counsel reveals a state of things that urgently calls for reform.

For the routine work of the service, good, average men whose professional experience outside the lecture room is strictly limited to India will always be available in sufficient numbers, but the Indian service includes so many appointments for which such humdrum credentials are entirely inadequate that every effort should be made to attract men of matured study and exceptional qualifications.

With this object the following reforms are respectfully suggested to the "powers that be" —

(1) The present age-limits are absurd under modern conditions of medical education. Practically speaking, it is impossible for the ordinary student to qualify under two or three and twenty, and a man who completes his education by taking a resident medical officer'ship and an honours degree cannot possibly enter till he is twenty-five or twenty-six, under which circumstances it is quite impossible for him to reach the highest ranks of the service.

The age limit should be absolutely done away with and in its place a term of service substituted, say thirty-five years in the case of promotion to colonel, and thirty-seven in the case of surgeons general.

To judge mankind by its years is a rule of thumb absurdity.

There are plenty of veterans of sixty who can hold their own even in practical field sports, and if men far in advance of this limit be physically and mentally fit to act as Cabinet Ministers they may surely be trusted to cope with the far lighter strain of the efficient conduct of the duties of director general of a medical service. A man prematurely senile would presumably not be selected for promotion to so important a post, and if physically unfit, the ordinary mechanism of invaliding, which is applied to officers of all grades, may be trusted to deal with the difficulty.

(2) Every effort should be made to attract men of the highest qualifications.

It will not be enough to allow time spent as resident medical officer of a teaching hospital to count for service and pension. In addition, a monetary bonus should be given to successful candidates who have sacrificed immediate pecuniary returns to the desire for professional efficiency. The same arguments apply to the holders of honours degrees, that is to say, those that require more prolonged study than is exacted for bare qualification, the F R C S and the holder of a qualification in public health for example. To those who have gained such degrees a small extra allowance should be made.

Engineering firms find that they cannot obtain a fitter for the same wages as a rivetter, and to offer the same rate of pay that is given to bare qualification to the finest flower of the medical schools is to put into practice the ideals of the worst school of trades unionists who would reduce all workmen, bad, good, and indifferent, to the same dead level of remuneration.

In the sister service of the R A M C the expediency and justice of rewarding men for the labour involved in acquiring additional professional knowledge has been recognised by the grant of what is known as specialist pay. We consider, however, that while the principle of rewarding exceptional zeal and ability is entirely sound, this particular application is a mistake.

It is an abuse of the ordinary application of the word to dub as a specialist a young fellow who has merely passed a few months in the clinic of some special hospital, for men cannot be converted into specialists in the same way as the pork butcher turns out an Oxford or a Bologna sausage by stuffing a skin with varying kinds of meat.

True specialism can only be attained by those who have laboured to give themselves an exceptional general training, and have then devoted special study and observation to a particular class of cases, and the best evidence of fitness to become a specialist is the possession of an honour's degree.

At any rate, the plan is entirely inapplicable to a service in which a large percentage of officers have, for example, far better claims to call themselves eye specialists than the majority of London ophthalmic surgeons, numbering their successful operations by hundreds when the latter can boast only of tens. Just fancy the position of the young officer who presented himself before the university professor in charge of the Eden Hospital, Calcutta, as an obstetric specialist.

The system would be killed by ridicule, but no such objection could be raised to a special allowance to the holders of honour's degrees, as all are well aware of the time and labour involved in their acquirement, and there can be no doubt that it would enormously stimulate post-graduate study within the ranks of the service.

(*J of Trop Med*, 1st Feb 1906)

PURI AS A HEALTH RESORT FOR BENGAL

HISTORY, we are told, repeats itself, and the experience of us all will give the saying proof.

Within the last few years residents of Calcutta have been on the look out for some place of resort nearer than the hills, as a place for week-end holiday makers and as a place to go to for change of air.

Readers of the story of the times of Warren Hastings, as told in many books about the great Governor-General or in *Hartley House* (which we are glad to see will soon be reprinted), will remember the many trips made by men in those days to Contai, to Kedgeree, to Balasore, and to

Beercool (Birkul), places now but seldom resorted to for any other purpose than business. Yet they had their reputation in their day and Beercool has been described as a "Sanatorium"—a sort of "Brighton of Calcutta," where courting, deer stalking, hunting and fishing could be obtained. There was even a proposal seriously made "to erect convenient apartments for the reception of the nobility and gentry and to organise entertainments," and a Mr. Chapman,* one of Hastings' devoted followers, in 1796, describes it in words which we may now apply to Puri, as having "a beach, certainly the finest in the world, and the air, such as to preclude any inconvenience being felt from the heat."

The fame of these places has passed away and to-day only the newly-made Fiaseigunge and Puri, the holy city of the Hindus, compete with the hills as resorts, for the weary and worn residents of busy Calcutta.

The advantages and also drawbacks to the Himalayan hill stations are well known and need not here be dwelt upon. Hill stations do not suit either the purses or the constitutions of every one, and medical men are only too anxious to find an alternative place to send their patients, when a hill station is unsuitable or journey home impossible.

Puri is the place we are at present concerned with, and several visits paid there have convinced us of the many possibilities of that place.

Puri, as is well known, is the capital of the district of that name, and in the town is the famous temple of Jagannath, to which thousands of pilgrims come at all times, and especially on the occasion of the great Car festival in June.

There are practically speaking two Puris, or rather there are two parts of it. From a sanatorium point of view there is the long beach and ridge above it, extending for a couple of miles in length and half a mile in depth. This extends, say from the public gardens near the railway to far beyond the white Customs House. Beyond or to the south of this Customs House, which with its flag-pole is a landmark on the beach, lies a new quarter, almost entirely inhabited by Indian gentlemen, who have built themselves houses here. Between the Customs House and the railway on the ridge lie all the houses of the present officials, and here are the

* Succeeded Cleveland at Bhagalpur. Retired with a fortune of £70,000, became M. P. Died in 1807, having lost most of his money by gambling at Bath. He is one of the omissions from Buckland's *Dict of Indian Biography*.

sites of the future houses, if, as we believe, Puri is to become a "week-end" or holiday resort for inhabitants of Calcutta and Bengal

This ridge rises slowly from the beach and is any, dry and open. Many good sites for houses could here be selected

Behind and at a considerable distance from this ridge lies the native town of Puri, built around the square of Jagannath's temple and along the very broad road from the temple to the garden along which the famous car is dragged by the willing hands of devotees or of hired coolies. The two portions of the town are apart, and any insanitary conditions which might at times prevail in the town need not affect the dwellers on the ridge

It need not be imagined that Puri is in the hot weather as cool as the hills. It is not, but the heat is never excessive and is always tempered by the strong cool pure breezes from the sea. The present and the future houses are, and will be, close to the beach and the fresh wind blows through the house all day. Punkas are seldom, if ever, wanted, certainly not at night time. The following table gives the actual figures for temperature and wind for the past two years, and are expressive —

		1904	1905	Wind Velocity
April	Average max temp	86°F	89°	19 miles per hour
	min	78°	75°	
May	max	89°	90°	25 miles
	min	80°	80°	
June	max	88°	90.5°	18 miles
	min	78°	82°	
July	max	86°	88°	18.5 miles
	min	77°	80°	
August	max	87°	89°	14 miles
	min	79°	81°	

The important point is that while these temperatures are comparatively low, they are made still more endurable by the ever present sea breeze. Nor is the rainfall heavy—in fact for a district in Bengal it is light. The following table gives the averages for the past five years —

	No of inches (5 year average)	No of days on which rain fell
January	38	3
February	91	2
March	61	2
April	45	4
May	1.91	4
June	3.80	9
July	9.4	15
August	9.5	18
September	9.8	15
October	5.4	9
November	2.4	3
December	0.5	5

The sandy soil soon absorbs the rain, and a few minutes after a shower the roads are dry again, and well fitted for cycling and walking

As regards health, it is not easy to get reliable statistics. The European population has only consisted of the few district officials, and the native population figures are vitiated by the fact that there is a continuous stream of pilgrims in and out of the town. The statistics of the Sanitary Commissioner, however, show that Puri District is the least malarious in Bengal, and those of the local hospitals show that the town is singularly free from malaria and from tuberculosis

Puri, we consider, can be made a place of value as a resort for invalids, especially those recovering from fever, from dysentery or other bowel complaints or suffering from incipient tuberculosis

Children do especially well at Puri and can play about on the sands for most of the day. Victims of chronic asthma often find relief there

Are there then no drawbacks? There certainly are, but we believe them removable

In the first place if Puri is to become a health resort or a holiday resort for "week-enders" the Railway Company must wake up. At present some twelve hours are spent in reaching Puri, a pure waste of time. A train leaving Calcutta at 10 P.M. should reach Puri at 8 A.M. if it is to attract visitors, and through carriages must be provided

Of accommodation at present there is but little. For ordinary visitors there is only a dāk bungalow with accommodation for about half a dozen persons. There is a Nursing Home for invalids, which has occasionally a spare room. A new sanatorium has been much talked of, and we hope it will soon see the light. An admirable site close to the sea, on the sandy ridge, has been chosen. Other houses are the Circuit House and P.W.D. Inspection bungalow for visitors on official duties, a Railway bungalow for use of railway employees, but Puri will be of no use as a holiday or health resort till a proper hotel or boarding house is ready. One word more. To make Puri a success amusements are necessary. Tennis courts and golf links must be developed and made available for visitors. A general shop is badly wanted, but once the modernisation of Puri is taken in hand all these will naturally follow

We believe in the possibilities of Puri though, as we say, much still remains to be done. We commend it to the notice of our readers. Puri, even at present, is well worth a visit

Current Topics.

MALTA FEVER IN INDIA

ONE of the most valuable features of the recent issues of the Annual Reports of the Sanitary Commissioner with the Government of India is the résumé given of the current medical literature on the most important diseases discussed in the Report.

In the issue of the Report for 1904 just to hand, Lt-Col Leslie, the Sanitary Commissioner, gives a very clear and useful account of the history of the discovery of Malta fever in India, and as most of this work has been either published or chronicled in these columns, and as the just published Memoir by Major G Lamb, I M S, has proved "conclusively" and "by methods which are unimpeachable" (the words are those of the Sanitary Commissioner) that "*many cases of true Malta fever have occurred among Europeans and Natives of India, and have originated as a result of local causes, and that, in short, Malta fever is an endemic disease of India as well as of Mediterranean stations,*" it will be of use and interest to briefly rehearse the history, the more especially as it is not without at least one important lesson.

The first reference to the occurrence of this fever in India was in the Report of the Sanitary Commissioner in 1892, when he referred to a few probable cases met with in a Scotch regiment stationed at Wellington, shortly after its arrival from Malta. Next, in 1894, Dr Ciombie referred to the cases he had treated at the General Hospital, Calcutta, cases among seamen, and all, we believe, imported, for Dr Ciombie was emphatic in his opinion that the disease had not been seen by him, in Bengal, as an indigenous fever of India. Next came Wright and Smith's article based on serum tests of blood of English soldiers invalided from India. These were claimed to be, and probably were, cases of Malta fever, but as 6 out of the 10 patients had served in the Mediterranean this paper proved little as to the existence of this fever as an indigenous disease in India. In 1900 the first mention of Malta fever in natives of India is recorded, and that too in places so unlike sea coast Mediterranean stations, as the Malakand and Datta Khel. Then came Captain Lamb's cases in Bombay, among whom were three Europeans, one Parsee and one Japanese. In all the above cases the diagnosis was chiefly based on the result of the serum-sedimentation test, as also were the cases so diagnosed in Delhi and Hissar districts. In the same year and in 1900 six cases were diagnosed as Malta fever in Simla, and some seven other native cases were recorded.

Up to this date it had usually been accepted that the serum-sedimentation test was sufficient for diagnosis, in spite of the fact that the

clinical symptoms were seldom or never in entire agreement with the disease as seen in Malta or in the wards at Netley.

Then came the great case which shook our faith in this method of exclusive diagnosis. Dr. Bentley of Assam sent the blood of several cases of long-continued fever to the Kasauli Laboratory, and he was informed that the blood reacted to the serum test for Malta fever. On this understanding Dr Bentley elaborated a theory that *kala azar* was Malta fever. This was at once attacked and soon proved an untenable position, and soon after the discovery of the Leishman-Donovan infection seemed to indicate that in this new parasite the long-guarded secret of the origin of *kala azar* may be contained. At the same time the Kasauli Laboratory found that with the cultures of the micrococcus in use there, which has been for some time in India, a positive reaction could be obtained with even normal blood, and results obtained by Dr Powell in Bombay and Captain Cornwall in Madras also showed the utter unreliability of the serum test when this particular strain of the micrococcus was used, and soon after Sir P. Manson uttered a warning against trusting the diagnosis of Malta fever made in certain laboratories in London.

We confess that these occurrences shook our faith in the use of this laboratory test as regards Malta fever, and we appealed to our readers to trust to clinical evidences and not to accept the serum test unless the clinical symptoms were in accordance with the recognised symptomatology of the disease.

It is therefore with much pleasure that we direct attention to Major Lamb's memoir, which seems to place beyond a doubt the existence of this fever as one of the continued fevers of India.*

THE ETIOLOGY OF MALTA FEVER

THE recent announcement of the discovery of the micrococcus of Malta fever in goat's milk does not seem after all to sum up the whole etiology of that remarkable and interesting disease, which, in view of the researches of Major G Lamb, I M S, we must needs acknowledge as one of the continued fevers of India.

In a valuable article in the *Journal of Tropical Medicine* (15th January 1906) Dr Edward H Ross, Medical Officer of the Sanitary Department, Port Said, discusses the mode of infection in Malta fever. He shows first, what is now well known, that this fever is prevalent in many other ports than Malta, though we may admit that it is very largely a disease of the Medi-

* The following are the chief articles in previous volumes of this Gazette dealing with Malta fever—*I M G*, Dec 1897, p 466, *I M G*, June 1900, p 337, *I M G*, Nov 1900, p 437, *I M G*, Sept 1902, p 337, *I M G*, Oct and Nov 1902, pp 377 and 427, *I M G*, June 1904, p 237, *I M G*, Feb 1904, p 45.

teranean Sea Dr Ross lays down several postulates —

(1) That Malta fever is only prevalent in the towns near the coast of sub-tropical seas. This we can only partially accept, while we admit that the evidence on which the diagnosis was built of this disease in the United States, in the Philippines, Cuba, Bermuda, &c, is at least doubtful. The question of its existence in India must be taken as settled in view of Major Lamb's evidence.

(2) The second postulate is (as regards Mediterranean ports at any rate) that the fever exists all the year round, but is enormously increased for the hot weather from April to November.

(3) In Malta the disease is especially prevalent in the hospitals in which cases of the disease have been treated, and doctors and nurses frequently contract the disease. Hughes noted that the disease may often be localised to certain houses, rooms, or even to certain beds in a ward.

(4) Postulate four is to the effect that the fever frequently occurs epidemically, but the cases invariably appear one after another and not simultaneously as if produced by some common cause.

(5) In the Royal Navy the disease "never occurs except in the case of men or officers who have recently spent the night ashore", or have returned a few days before from the hospital ashore, but if a ship goes into dry dock or is moored to a wharf in Malta harbour an epidemic almost invariably breaks out, often a few days after leaving the port.

Surgeon Ross then concludes that the specific method of the transmission of the disease must coincide with and account for all the above five postulates before it can be considered, the real mode of infection.

Surgeon Ross and Surgeon Levick, R.N., then collected five others who volunteered to try upon themselves every possible method of the transmission of the disease, so as by a process of exclusion to hit upon the right mode of infection. They considered all possible modes of infection, (1) by direct contact, that is, by nursing cases and by sleeping in the bed clothes of patients. We must premise that all these volunteers were non-immunes. They concluded that the disease cannot be contracted in this way.

(2) Infection by clothing. Nothing could be proved, and all the non-immunes who slept in infected clothing remained well, nor was the disease even conveyed to England, &c, by returning invalids.

(3) Transmission by urine-infected dust. Urine from a Malta fever patient mixed with dust was sniffed up by two non-immunes, but nothing happened, nor will the dust theory explain cases caught in hospital or on board ships at sea.

(4) A water-borne theory is admittedly improbable.

(5) Infection by some intermediate host. This leads to the goat's milk theory. It was supposed that the goats got the disease by eating offal. But cows also suffer from Malta fever, and also horses, who certainly do not eat offal. The sole use of sterilised milk too has failed to prevent the spread of the disease, and it will be agreed that neither the British soldier in garrison, nor the British sailor when he has a night on shore drink milk.

(6) Surgeon Ross then states his opinion that the common and specific mode of infection in this disease is by means of a biting insect. We quote his remarks in full.

"Of all the methods of infection this seems to be the most probable one. It is the only one which will agree with all our postulates."

(1) The disease is endemic only in certain places, then it is probably conveyed by some insect which only inhabits these certain places.

(2) Malta fever occurs in the endemic areas all the year round, but its incidence is enormously increased during the summer months, some mosquitoes and biting flies live and bite in these endemic areas all the year round, but all biting insects increase enormously during the hot weather.

(3) Malta fever is specially prevalent in the hospitals where cases of the disease are being treated. When we know that it is not directly contagious and cannot be conveyed by infected clothing the insect borne theory will alone explain the marked prevalence the disease has in hospitals and among nurses and orderlies in them. In hospitals, of all places, water and milk should be carefully sterilised and food carefully prepared.

Then the predilection Malta fever has for certain houses, rooms, and even beds, can only, in the absence of the conveyance of the disease by direct contact, or by clothing, be explained by the insect borne theory. These last factors favour the transmission being by mosquitoes rather than by flies, for a mosquito will remain in the same room of a house or ship for months, so long as it can obtain a sufficiency of food in it.

(4) Then, again, during epidemics persons commonly contract the disease one after another in the hot weather, the interval between the cases being then short, for the mosquitoes feed regularly, but this interval is increased to two, three, or more days when the weather is cold, and when the digestive periods of insects is prolonged during partial hibernation. Mosquitoes rarely fly off to the men-of-war in Malta harbour, but if a ship goes into dock then she is at once invaded by these pests and an epidemic occurs. Sometimes when such a ship goes to sea the epidemic continues, because the insect remains on board conveying the disease from one person to another with a regular interval corresponding with its digestive period."

This is very good as far as it goes, but the fact remains that the experiments made by means of infected or probably infected mosquitoes have only been partially successful, and the disease being a bacterial one (*micrococcus melitensis* of Bruce) it is less probable that it is insect-borne*. The paper by Dr E. H. Ross is however most timely and useful and shows us that the matter is by no means settled yet, and he has thrown considerable doubt upon the goat's milk theory.

* See evidence on this point in the most recent portion of Commission's Report, which we shall deal with in next issue.

THE BILHARZIA PARASITE IN INDIA

UNDER this heading in April last (*I M G*, Vol XL, p 145) we commented upon the rarity of infection in human beings, by this parasite in India, and our attention has again been directed to it by the publication of a valuable article on *Bilharziasis among animals in India* by Mr R E Montgomery, I C V D, in the first number of our new contemporary, the *Journal of Tropical Veterinary Science* (Thacker Spink, & Co, publishers)

The following sums up, we think, all that is known about this infection in India. Lieutenant-Colonel Hatch, I M S, of Bombay, reported cases in pilgrims returning from Mecca to Bombay. Dr S Powell reported (*B M J*, 1903, p 490, Vol I) a case in a syce in Bombay. Sewell (*R A M C Journal*, Vol II, p 348) reports a case in a soldier who had served only in India and in England. Stephens and Christophers (*B M A Meeting*, 1905) mention a case in a native of Madras, and more recently we commented on a finding of the ovum in a complicated case reported by Major R H Castor, I M S, of Bassem. Nevertheless Neumann, Sanfelice and Loi refer to India as a country infected by this parasite. As far as human beings are concerned the infection, though not absent, is certainly rare, and this parasite occupies no such position in Indian pathology as it does, say, in Egypt, and the question of imported or indigenous infection should be considered in all cases.

It appears, however, from Mr Montgomery's article above referred to that the parasite or a closely allied species is fairly common among animals in India.

The recent classification of these trematodes is that of Looss, which is as follows —

Sub-family, *Schistosomidae*, three species, viz —

1 *Sch hæmatobrium* (vel distoma hæmat vel Bilharzia) the species so common in Africa

2 *Sch bovis* (Sousino) found in cattle, sheep and horses

3 *Sch Japonicum* (*Sch Cattoi*) recently discovered by Dr Katsurada in Japan and by Dr J Catto in the body of a Chinaman at Singapore *

4 To this may be added *Sch Indicum*, described below

The differences between the adults of *Sch hæmatobrium* and *Sch bovis* are so slight that considerable discussion has taken place as to the admission of *Sch bovis* as a separate entity, the ova however are different. It may be remembered that Surgeon-General G Bomford, I M S, so long ago as 1886, described certain ova characteristic of this sub-family which he had found in the large intestine of two transport bullocks in Calcutta. These eggs described by Bomford (*Sci Memoirs*, 1886, part II, p 53) are said by Montgomery to resemble the human species of parasite. Mr Montgomery in April

1905 discovered in the horse another *Schistosomum* which he describes (*loc cit supra*) as a new species, to which he gives the name *Sch Indicum*. This has been found in horses, and out of 11 hill ponies 9 were found infected and of 15 plains ponies 11 were infected. On the other hand Captain Baldiey was unable to find the parasite in 25 post-mortems at the Veterinary College, Lahore. The ponies in which the parasite was found were ones who died from experimental infection of surra, and numerous other cestodes, trematodes and nematodes were also found. It may be added that there were during life no symptoms pointing towards this infection, and Mr Montgomery concludes that "in equines this new parasite is more or less harmless." The same parasite has been found in plains donkeys.

The paper is an admirable one, complete and well illustrated. The presence of this parasite in equines is a fact of considerable interest and importance.

RECENT WORK ON AMŒBIC DYSENTERY

Bulletin No 32 (June 1905) from the Manila Laboratory contains three valuable contributions to the literature of amœbic dysentery. The great prevalence of this form of dysentery in the Philippines is well known by the work of Dr Strong, Dr Musgrove and other workers in the fine Government Laboratories at Manila, but it is a question which should be settled in India whether amœbic dysentery is the common form in India or whether, as is generally believed, bacillary dysentery is the more common. The matter could soon be settled if a special officer were put on duty to travel round and examine a series of cases at the chief public and Jail Hospitals in India, and we doubt if it will ever be satisfactorily settled till this is done, though individual officers could do much by examining their dysentery cases and publishing their results.

In the *Bulletin* referred to above, Dr Strong, the Director of the Laboratory, gives examples of a somewhat rare and formidable complication of dysentery, namely, the occurrence of severe intestinal hæmorrhage, that is the passage of large quantities of pure blood. We do not, however, think that this formidable complication is as rare as the literature quoted by Dr Strong would indicate.

In another article Dr Thomas of Benquet gives an account of a series of experiments made by him on the action of various chemical substances upon cultures of amœbæ *. His conclusions are as follows —

"Boric acid, eucalyptol, oil of cassia, and infusion of quassia had slight if any effect on the amœbæ."

Tannic acid 1—100, sulphate of copper 1—2000 permanganate of potassium 1—4,000, and sulphate of

* A good account of these trematodes appears in Braun's *Animal Parasites in Man*, recently reviewed in these columns.

* We may note in passing that in these *Bulletins* the more correct spelling of the word amœbæ is reverted to, and "ameba" and "amebic" are given up.

quinine 1—1,000 had a distinct, moderate effect on the growth of the amœbæ and spirilla within thirty minutes.

Benzoyl acetyl peroxide, acid succinic peroxide 1—1,000 permanganate of potassium 1—2,000, sulphate of quinine 1—500, nitrate of silver 1—2,000, argyrol 1—500, and protargol 1—500 exercised a very marked effect on the growth of the cultures within thirty minutes, and in the case of the silver salts and the acid succinic peroxide the action was plainly due to the destruction or inhibition of the growth of the symbiotic cholera spirillum.

Thymol 1—2,500 applied for fifteen minutes had the unique effect in some of the experiments of destroying the amœbæ while exercising only a moderate effect on the cholera spirilla.

There is no specific treatment for amœbic dysentery, but if the test-tube results detailed above are a fair index of the behaviour of the substances in the actual local treatment of the disease, the clinician can add to his therapeutic armamentarium a few more agents of a value equal or superior to quinine. Such a choice will be appreciated by physicians practising in the Tropics when they encounter patients intolerant of quinine, or otherwise failing to benefit by its local action.

In the same *Bulletin* Drs P G Wooley and Musgrove publish a valuable article on the Pathology of what they call "Intestinal amœbiasis," which is a very good study of the process of ulceration from the "small raised dots" accurately noted by Leonard Rogers to the undermined ulcers and perforation. The paper is extremely well illustrated, in fact the ulcerative conditions shown so well on the plates in this pamphlet are so familiar as to raise the suspicion that the condition here described as "amœbiasis" must be very common in our Indian post-mortem rooms. However that may be we can only here quote the conclusions drawn by the authors of this valuable paper —

1 "Intestinal amœbiasis is a peculiar ulcerative condition of the intestine caused by *Amœba coli* (Lüsch), usually confined to the large intestine, though occasionally (7 in 200 cases) the ileum is affected and more often (14 in 200 cases) the appendix is involved.

2 In the majority of cases the condition affects the entire bowel (159 in 200 cases), though it may be limited to one or more portions, most commonly the cæcum and ascending colon (23 in 200 cases).

3 The ulcers show a tendency to be undermined, due to the lack of resistance on the part of the submucous layer of the bowel.

4 The organisms may enter the blood vessels very early in the disease and may be transported to the submucosa without lesions of the muscularis mucosa.

5 The disease is a subacute chronic inflammatory process, as shown by the character of the exudate and infiltration, by the early formation of granulation tissue, and by the absence of leucocytic infiltration.

6 Complete healing may be accomplished or a condition of chronic atrophic enteritis or chronic catarrh may persist, which is known as sprue or psilosis."

The concluding remark is interesting as pointing to the existence of a post-dysenteric psilosis or sprue, a clinical fact which we described several years ago in a discussion on sprue at a meeting of the tropical section of the British Medical Association.

THE BROMIDES IN EPILEPSY.

QUITE a number of articles have recently appeared on the subject of the value of the

bromides in epilepsy. The tendency of them all is against their use, or rather towards using them in comparatively small doses.

Under the heading "Abuse of Bromides in Epilepsy" Dr Spratling writes in the *Medical Record* that, as generally administered, in his experience of 2,000 cases in ten years, they did "vastly more harm than good." They have, he thinks, only a limited range of usefulness in suppressing convulsions. It is also a fact that under modes of treatment of epileptics much less bromide is now used, as, for example, in Bielefeld Colony in Germany, and in the well-known Craig Colony.

No doubt many epileptics respond well to the suppressive effects of the bromides, but suppression is not cure.

The defects of the bromides may be summarised as follows —

On the respiration ordinary doses produce but little effect, in larger doses they act as depressants. On the alimentary canal they often act disastrously—irritating the mucous membrane and interfering with the reflex activity of the stomach in a way to check the normal secretion of gastric juice which impairs digestion. They cause constipation, heavy coating of the tongue, and foul breath, a bad taste and a pasty feeling in the mouth, loss of appetite, and not infrequently nausea and diarrhoea.

On nutrition they act unfavourably in some cases by lessening metabolic changes through depressing the nervous system. They produce unsteady gait, myæthenia and often loss of sexual vigor, forgetfulness and slight degrees of aphasia, usually shown in the misuse of words and the wrong formation of sentences.

Several other factors are pointed out (*Therapeutic Gazette*, November 1905) which account for the lesser use of the bromides and consequent lesser appearance of bromism. Among them may be mentioned —

(a) The recognition during the past few years of the necessity for the treatment of the individual *in toto*, in contradistinction to the treatment of a single symptom. (b) The use of depressants that possess the virtues of the bromides, but not their faults, the chief agent of this kind being pure bromide in oil of sesamum, given in the form of an emulsion. (c) The use of Toulouse's method of a diet poor in salt to augment the value of relatively small doses of a bromide. Ten grains of bromide under this method is as effective ordinarily as twenty grains when no check is put upon the amount of chloride of sodium that is consumed in the food.

For some four or five years after the opening of the Craig Colony it was a daily occurrence to admit patients suffering from violent evidences of bromide poisoning due to the long continued use of the drug in forty to sixty grain doses three times a day. In some of these cases there was pronounced bromide dementia—a condition that usually soon cleared up after the withdrawal of the drug. Such cases are now of great rarity, although the admissions are more frequent than ever. The more completely we can get away from the idea that epilepsy is simply a convulsion and nothing more, a disease with one fixed symptom to be cured by one drug, the more gratifying will be the rate of recoveries.

Unfortunately a large number of popular remedies consist largely if not entirely of bromides, and this will always be a difficulty in the proper treatment of these unfortunate cases.

TEA AS A BEVERAGE

AN interesting practical note on the physiological action of tea as a beverage by Sir Lauder Brunton, M.D., F.R.S., appears in a recent number of *The Practitioner*. The use of tea is one of those things which experience has taught mankind, but whose utility science can even now with difficulty explain. Sir Lauder is inclined to the view that the use of tea is due to a dread born of bitter experience, of bad water, because the boiling makes the water in tea safe, e.g., in many parts of Russia the water is vile, and the tea-urn or Samovar everywhere in evidence. But tea as thus drunk in Russia is extremely "weak," to our ideas it is "simply hot water, scarcely coloured and barely flavoured with tea."

But tea is more than coloured or flavoured boiled water, it is also a stimulant, the use of which in various forms is universal. The effect of tea and of coffee or cocoa is threefold, on the circulation, on the spinal cord and on the brain. The sense of fatigue is lessened and a sense of wellbeing is experienced.

Tea, like everything else, may however be abused, and the tannin in tea does not go well with meat, as in the "meat teas" favoured by certain classes in England. Upon farinaceous food tea has no such action, and bread and butter, toast and rusks go well with tea. Fish and eggs suffer less from the tannin than does butcher's meat, and bacon is already hard and remains unaffected, hence the rationale of the British breakfast.

It is generally said that there is less tannin in China than in India or Ceylon tea. There may be a slight difference, but far more important than this is the way that the tea is made. Boiling, freshly boiled, water should be poured on the leaves, and immediately poured off after standing only a few minutes. If, as is not uncommon, the tea leaves are boiled and stewed in water the tannin is largely extracted and the result is dyspepsia. Again, the quality of the water makes much difference. Hard and chalybeate waters make a bad ink-like infusion, and if only this water is available sodawater or appolinaris might be with advantage used for tea-making, or the old practice of adding a pinch of bicarbonate of soda remembered. Therefore tea in moderation is good, but it must be prepared with fresh boiled and boiling water, not allowed to "stand," and in fairly weak dilution.

Our Delhi contemporary, *Practical Medicine* (January 1906), contained an article on a "Peculiar Skin Disease in Simla," by Dr. Meln Ram, M.B. It appears to be a "dermatitis with papular eruption like lichen planus." It is accompanied by severe itching. The disease attacks chiefly new arrivals, but the writer does not say whether he means Europeans or Indians, or both. The rash appears chiefly on forearms

and legs, small scabs form which fall off leaving discoloured marks behind. The trouble runs a chronic course, fresh crops appearing as the old ones clear up. The chief trouble is the pruritus, which is very severe. The treatment by drugs is not of much use, but, it is said, departure from Simla immediately cures the disease.

Will some of our readers with experience of Simla enlighten us on the nature of this complaint?

No. 21 of the new and increasing valuable series of *Scientific Memoirs*, issued by the Sanitary Commissioner with the Government of India, is by Major G. Lamb, M.D., I.M.S., and Captain W. B. C. Forster, M.B., D.P.H., and deals with the important question of the standardisation of antityphoid vaccine, and the technique employed. It is too long to adequately quote here, but our readers are referred to the monograph itself.

In an eminently sensible article in the *Practitioner* (January 1906), Dr. J. F. Goodhart of Guy's Hospital, sums up his views on the treatment of uric acid as follows —

"Strict moderation in all things, mind and body, is the rule of life for avoiding uric acid and allied troubles."

I have said nothing about drugs, except port wine, but I will now say this, that all the uric acid solvents, so much vaunted, appear to be equally useless for that special purpose, but I believe that *salines* have their value, if given with discrimination, for facilitating the excreting power of the several abdominal glands. And, in this way, water is probably one of the best remedies, but even water drinking, if excessive, is, I think, not to be indulged in with impunity, for I am, by no means, prepared to assent to what appears to be the popular belief that water being harmless, it matters not what amount is imbibed in the 24 hours.

In my opinion, the late Sir William Roberts' simple prescription of half a drachm of bicarbonate of potash in a tumbler of water at bedtime, to stem the nightly acid tide, is, on the whole, one of the most useful recommendations, apart from tonics, cures at watering places, and change of scene and air."

We heartily welcome the appearance of the *Journal of Tropical Veterinary Science*, edited by Major H. T. Pease, C.V.D., Captain F. S. H. Baldiey, C.V.D., and Mr. R. E. Montgomery, I.C.V.D., all of the Punjab Veterinary College. The Journal is to be a quarterly, and is published by Messrs. Thacker, Spink & Co., Calcutta (annual subscription Rs. 12/8). The recent advances, especially in parasitology, have emphasised the connection between medicine and veterinary science, and research into such subjects as trypanosomiasis, spirochaetosis, protozoosis, ankylostomiasis, bilharziosis, and filariasis are equally important to medical men and to veterinarians, hence we welcome the appearance of the new Journal. The first number is a good one, it contains an article by Dr. Lingard on a new trypanosome in rats, and another by

the same writer on the *try Evansi* in Suira. Mr Montgomery's article on bilharzia infection in India we have fully noticed in another column. Captain Baldiey contributes a good article on the blood in milderpest, and Major H T Pease on the chronic fever of camels due to a trypanosomiasis, or *tibarsa surra*. The first number is admirably printed and well illustrated. We wish the new Journal every success.

In the February number of the *Edinburgh Medical Journal* will be found a good account of a severe outbreak of berri-berri among the Europeans and Natives of a sailing ship from Rangoon to Leith. It is written by Major D G Marshall, IMS (ret'd), Lecturer on Tropical Diseases, Edinburgh. The ship had a crew of twenty-three Europeans, two Indians and one Japanese. She left Rangoon on 16th June, and put in at St Helena on 22nd September. On 2nd September, 96 days out from Rangoon, one of the crew reported sick, then two days later the Japanese fell ill. In all twenty Europeans and two Asiatics were attacked, and all within thirteen days of each other. The cargo was rice-meal, what we in India would call *paddy-bhusa*, or the husk left after making rice from paddy. The dietary is said to have been ample, and none of the many theories of berri-berri will explain this outbreak. In reading it we could not help thinking of the accounts given, in the histories of old time voyages, of outbreaks of scurvy. How much of the old ship scurvy was berri-berri?

We direct attention to the report on Cerebro-spinal Meningitis in India by Captain C J Robertson-Milne, IMS. It is a most complete and valuable history of the occurrence of this disease in India,—one which has been by Medical Officers in India long recognised as one of the great continued fevers of India.

INTENDING Contributors to our SPECIAL PLAGUE NUMBER are informed that at the request of several men on Plague duty, the issue is postponed to enable men to write their reports. Papers should therefore be in the hands of the Editor, *not later than 20th May 1906*. The subject is *How Plague is Spread*. The prize will be Rs 100.

Reviews

A System of Medicine, by many Writers.
Edited by T CLIFFORD ALLBUTT, and H D Rolleston. Vol I, 1905. London. Macmillan & Co.

THE first volume of the first edition of this magnificent work appeared in 1896, and now before ten years have gone a new edition has begun to appear. In the second edition of his great work Dr Clifford Allbutt has engaged the

services of Dr Humphry Davy Rolleston, of St George's Hospital, to assist him. It is no doubt desirable that a book which so well represents British Medicine should keep well to the front, so the Editors have determined to revise and bring out one volume a year, each new volume corresponding to the one in the first edition. In this way the original edition will be gradually superseded by the new. But the new edition is intended to be more than a revision. In most instances considerable additions have been made to articles, while others have been entirely rewritten, and general fresh subjects have been introduced.

In the volume before us the first article, on the History of Medicine, is quite new and has been written by Dr Clifford Allbutt in conjunction with Dr Payne. Dr Tatham has given an entirely new article on medical statistics. Dr Clemon, author of *The Geography of Disease*, has fitly rewritten anew the chapter on that subject. Dr Hutchison has largely revised his article on diabetes, and includes the important experiments of Professor Chittenden on the excess consumption of proteids, which will probably considerably modify our views on the amount of proteid which the body requires daily, and cause us to revise the figures which for years past we have been content to use, following Voits' experiments.

The article by the late Professor Leech in the first edition is rewritten now by Sir Lauder Brunton. Professor Adams' chapter on inflammation is a masterly one. Others on Massage, Electricity in Medicine, X-Rays, Life Assurance, Nutrition and New Growths are all good.

The second division of this volume includes some of the infections, e.g., Watson-Cheyne on Septicæmia, and Erysipelas, Dr Goodhart on Influenza, Dr Woodhead on Tetanus, Drs Diesfield and Lorrain-Smith on Typhoid (as it is here called enteric fever). Other articles are on Relapsing Fever and Cerebro-spinal Meningitis. The latter is the one article in the book which is not up-to-date, it entirely overlooks the prevalence of the disease in India, Egypt and other countries, while it gives minute details of outbreaks in Europe and America. On the etiology of this disease it has nothing to say.

The article on relapsing fever is good, and there is a note on recent work on the subject of tick fever in India and Africa.

On the whole we have nothing but praise for the first volume of the new edition. We recommend our readers to possess themselves of the first volume, and to look out for the second, for the second volume will be practically a treatise on tropical diseases, in which the editors are having the assistance of Sir Patrick Manson.

Judging from the excellence of the "tropical" articles in the first edition, we look forward to the appearance of the next volume, which we expect will fitly represent present knowledge on these subjects.

The Changes produced by Inflammation in the Conjunctiva.—(Hunterian Lecture, R. C. S., 1905) By M. S. MAYOU, F.R.C.S., London. John Bale, Sons and Danielsson, Ltd., 1905. Pp. 179. 44 Figures and 4 Plates.

THIS book records the results of some years' research on inflammation as studied in the conjunctiva and is of considerable interest to general pathologists as well as to ophthalmologists. By studying the structure and development of the conjunctiva in the embryo and newborn human being and in other animals especially in snakes, Mr. Mayou has succeeded in producing a singularly instructive monograph which is of much value. Much of the work contained in it formed part of the essay which obtained the Jacksonian prize in 1903. Perhaps the most interesting of the lectures deal with trachoma and follicular conjunctivitis. Lymphoid tissue is regarded as being formed from the endothelium of the subepithelial tissues as the result of irritation, just as after removal of lymphatic glands new ones may form, and in cases of chronic inflammation new glands may be found in unexpected places where no glands are normally to be found. This local production of lymphocytes is regarded as more probable than rapid division of lymphocytes brought to the part by the blood stream. The follicles in the conjunctiva are looked upon therefore as a protective reaction, as the result of irritation or as part of a general increase of lymphoid tissue at an age when all the lymphoid tissues are very active. Trachoma Mr. Mayou regards as follicular formations plus trachomatous infection, the follicles being simply an effort on the part of the tissue to produce mononuclear cells, and becoming secondarily infected with trachoma. Pannus is nothing more than the spread of the trachoma from the limbus to the cornea, modified by the dense nature of the tissue and the absence of blood vessels, the purulent discharge in trachoma is a septic infection of the conjunctiva in addition to the trachoma. This leads to infection of the follicles with their rupture and sometimes cure, but may at the same time, if profuse, lead to increased spread of the disease. Mr. Mayou would make trachoma a notifiable disease, and like all other ophthalmic surgeons emphasises the danger caused by infected aliens, especially Polish Jews, who are refused admission to other countries and take refuge in ours. Under treatment Mr. Mayou extols the x-rays, which he was the first to use and still finds most satisfactory.

Calcutta Past and Present—By KATHLEEN BLECHYNDEN. London and Calcutta. Thacker, Spink & Co., 1905.

THIS handsome little volume is of the greatest possible interest not only to "ditchers," as was the oldtime name for residents of Calcutta, but to all who are interested in the origin and spread of the British power in India. It is not only an interesting history of Calcutta, but

the authoress has succeeded in painting a life-like picture of the social life in old Calcutta, and all who have learned to love the history of old Calcutta, after reading Dr. Busteed's *Echoes* will also read the present volume with pleasure. As medical journalists we turned with expectation to the account given of the old hospitals of Calcutta, but the description given of them is meagre in the extreme, and this is the more remarkable as there existed in the January 1903 issue of this *Gazette* three excellent papers, by the late Dr. C. R. Wilson, by Lt.-Col. Crawford and by Major D. M. Mon, I.M.S., on the early history of the hospitals of Calcutta. In the book before us there is much said about the Revd. John Zachariah Kiernander, but much of interest might have been added had the authoress read the graphic account given by Major Mon, I.M.S., of the struggles to build the Presidency General Hospital. We may note in passing that our authoress calls this remarkable man John Zachary, he is more usually known as John Zachariah Kiernander*. Miss Blechynden follows other writers and calls him "a Native gentleman" and seems entirely ignorant of Kiernander's share in the building. (See *Indian Medical Gazette*, January 1903, p. 8.) Her book could also have been improved by a reproduction of the plan of old Fort William, surveyed and drawn by Lt. Wm. Wells of the Artillery Company in Bengal in 1753, which we produced along with Dr. Wilson's article (*loc cit*, p. 2).

We have thought it right to call attention to these omissions, but they detract but little from the general interest of the book, which we have read with great interest and which we heartily commend to the attention of our readers.

A Text-Book on the Practice of Gynecology for Practitioners and Students—By WILLIAM EASTERLY ASHTON, M.D., LL.D., W. B. Saunders & Co., 1905. 8vo, pp. 1079. With 1046 new line drawings.

THE special feature of this work is, that the author takes up each procedure necessary to gynecological work, step by step, and explains in each case, not only what treatment is indicated, but precisely how to do it. The book is most sumptuously illustrated with excellent line drawings, which will greatly aid the student in following out the steps of the various procedures explained in the text, and, in our opinion, this description of illustration is far better for bringing out clearly the special points on which it is desired to lay stress, than any reproductions from photographs. In the section dealing with Fibroids, the author, in accordance with the most modern teaching of the day, recommends their removal in the vast majority of cases, but he is in favour of supra-vaginal as

* We may also note that C. Buckland in his admirable and useful *Dictionary of Indian Biography* ignores Kiernander's connection with the building of the Presidency General Hospital.

against total hysterectomy, in all cases except when a sloughing fibroid is found with general infection, or when there is malignant disease in association with the growth. This is in accordance with the views of the majority of gynecologists, though we personally cannot but think, that as the technique of the total operation becomes improved, and its advantages more clearly defined, it will be the operation of selection in most cases. The chapter dealing with conservative operations of the tubes and ovaries is very good, great stress being very rightly laid on the vast importance of preserving at least one ovary and tube, wholly or, at any rate, partially intact wherever practicable. The chapters on disorders of menstruation are very clear and complete, and treatment is fully given. In the after-treatment of abdominal sections, the advantages of an early dose of calomel, given after the lapse of twenty-four hours, is insisted on, and this method of treatment is undoubtedly of the very greatest value. On the much-debated question as to the best method of closing the abdominal wall after section cases, the use of through-and-through silk worm gut sutures is advised, with a continuous catgut suture through the anterior sheath of the rectus muscle, a method which the majority of operators are now coming to adopt, as being all that is necessary to ensure the best results. In the operation for dilating the cervix, no mention is made of the use of graduated dilators, the method adopted by the majority of English operators, and one possessing, in our opinion, many advantages over the mechanical dilator recommended by the author. In the treatment of appendicitis, operation is recommended as soon as ever the diagnosis is made, the author very rightly pointing out the impossibility of the surgeon's being able to tell what pathological conditions are present or how the attack will terminate. We entirely concur in his remark "Delay simply means playing a game of chance with the odds in favour of death." The general trend of surgical opinion is undoubtedly more and more in favour of early operation in all cases, and this treatment, if generally adopted, would undoubtedly save many lives at present sacrificed by the dangerous policy of delay. In conclusion, we may say the work is an excellent one, and can be highly recommended as a valuable book of reference. We know of no other going into every detail of treatment with such care, or written in a more interesting and readable style. The teaching in up to date and is, as a whole, in accordance with that of the leading English gynecologists. The book is certainly one which is in every way worthy of the profession in the country in which it is produced, and will, we think, speedily become a standard work of reference in the library of most gynecologists. It is well got up, the paper being of good quality and the type clear.

Dietetics for Nurses By JULIUS FRIEDENWALD, M D, and JOHN RUHRAH, M D, Philadelphia and London W B SAUNDERS & Co, 1905 Pp 363

THE authors state that this book has been written as a handbook for nurses and laymen who are interested in the subject of feeding the sick, and that the aim of the book is to give the essentials of dietetics. The chemistry and physiology of digestion and the classes of foods and various factors in their bearing on diet are briefly dealt with in clear and simple language in the opening chapters. The subjects of infant feeding in health and in sickness, and diet for the aged are next concisely treated, and following these are chapters dealing with rectal feeding, the general rules for feeding the sick, and diets in various diseases, special diet cures are also shortly considered, and the diet in surgical cases. The book concludes with chapters on hospital diet and a most valuable collection of recipes of all kinds. This volume contains a great deal of very valuable and useful information on the most important question of diet. The authors have dealt with the whole subject in a very broad-minded way, as is specially noticeable in the parts touching on the use of alcohol. We question the advisability of endeavouring to teach nurses and laymen quite so much on the subject, as we think it may, in many cases, only lead to a confusion of ideas, but as a reference book it should be of help to those who are more highly trained. The work would, however, we are sure, be of the very greatest service to many medical practitioners, as it is well written in clear and concise language, and we know of no other book of such a handy size, in which the subject is so well treated.

A Reference Handbook for Nurses By AMANDA K BECK, Philadelphia and London W B SAUNDERS & Co 1905 12mo Pp 177

THIS small work, as stated in the preface, has been compiled by the author from notes of various formulæ, directions, &c, taken during her class and hospital work, and as the result of her after-experience as a graduate trained nurse.

At the beginning will be found a list of abbreviations used in prescriptions, &c, with their respective meanings, tables of weights and measures, the actions, uses and doses of the most important drugs, poisons and their antidotes, various formulæ for solutions, enemata, poultices, &c, with full directions for their use, and a short article on the feeding of infants. This is followed by an article on the nursing and care of various medical cases, with instructions for the preparation of surgical supplies, and of patients and rooms for surgical operations. There are also short notes on emergencies, massage, electricity, preparation of food, &c, brief chapters on obstetric work for nurses, and on nursing in children's diseases, and a few notes on medical diseases and remedies. The

only criticism we would offer is is it advisable to teach a nurse, as part of her regular instruction, such things as the administration of morphia (apparently without direct orders from the medical man in charge) in the case of hæmorrhage in enteric fever, the diet in different diseases, the differential diagnosis of small pox from chicken pox, &c? These points being no part of a nurse's duty, ought surely to be left to the medical man in charge. Apart from this, however, the book will be found to contain a great deal of reliable and valuable information in a small space, and should prove useful to the class for whom it is written. It is handy in size and of attractive appearance.

Catharine Grace Lock A Memoir, edited by Surgeon General A F BRADSHAW, C B London, &c, HENRY FROWDE December, 1905 Price, 4s net

THIS is a very interesting little book, interesting not only on account of the personality of the subject of the memoir, but as giving an account of the introduction of the nursing service into the military hospitals of India. Those whose memories of India carry them back to the year 1888 will not forget the arrival of the nursing sisters and the difference which they made in the comforts of the station hospitals in India.

The little book is edited by Surgeon-General A F Bradshaw, C B, who will be remembered by many as P M O in Rawal Pindi, and afterwards as P M O, H M's Forces in India. It has a brief introduction from Lord Roberts, appropriately enough when it is remembered how much interest Lady Roberts took in the formation of the Nursing Service, now known by the somewhat formidable title of Queen Alexandra's Military Nursing Service for India.

Miss Lock came out after a period of training and work at "Baits," in March 1888, as the first Lady Superintendent of Nurses, and was stationed at Rawal Pindi. The book is largely made up of her diary, which she evidently wrote fully in. The whole book is one of much interest and can be commended to our readers.

Correspondence

A MEDICAL VISITOR'S THANKS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—A visiting medical man, I crave the indulgence of a small portion of your space in which to give expression to a well deserved appreciation of the individual members of the Indian Medical Service and of the high character of their work. Commencing with Madras I have successively visited Calcutta, Benares, Lucknow, Agra, Moradabad, Kasauli, Jullundur, Amritsar, Kasauli, Lahore, Peshawar, Srinagar, Bombay and many other towns. I am at a loss to know which to admire most—devotion to work or successful performance of the most multifarious duties. I am not aware of any service that could be compared with the Indian Medical Service with equal credit. I do not doubt that the Indian Government realises to the full the calibre of the men composing this service, to me the

proof of this realisation is patent in the well justified confidence with which that Government at one time posts a member to the charge of a mint, at another to an opium factory, or to a gaol or to a semi political mission or to some highly specialised form of professional work, such as Plague Research, Hydrophobia Prevention, &c. In operations on Cataract and Vesical Calculus, some of its past and present members lead the world. I shall follow with the keenest interest the record of the work of members of this splendid service with the conviction that I will continue my Indian experience in the acquisition of much useful knowledge.

The generous hospitality extended by the members of the service to a visiting colleague leaves him a hopeless debtor though a sincere admirer. Thanking you in anticipation

I am, Sir,

Yours faithfully,

A L KENNY, M B, Ch B (Melb)

EXTRACTION OF CATARACT IN THE CAPSULE

To the Editor of "THE INDIAN MEDICAL GAZETTE."

SIR,—In Major Herbert's article in the February number of the *Indian Medical Gazette*, he says the "complete" operation introduces a risk unnecessarily, i.e., for the sake of advantages which can be obtained without risk.

Both of these assertions are open to question. In the first place it has by no means been shown that it introduces any risk at all special to itself, and secondly its advantages are peculiar to itself and not obtainable by the incomplete operation.

As regards the risk involved, we may admit that the "complete" operation is more liable to be complicated by the escape of a bead of vitreous, but it has yet to be shown that these minute losses are in any way harmful. The evidence available is indeed against these assumptions, as Colonel Hall* says (speaking here too of some more considerable losses of vitreous) "this is an accident which seldom causes harm to the eye eventually."

It must not be forgotten that this accident is of very different prognostic import in the complete and in the incomplete operation. When the capsule has been ruptured, as in the latter, allowing a mixture of vitreous and soft lens matter, it is a serious accident. Indeed, to quote Colonel Hall, it is—"in itself fatal to the eye."

As regards the second point, let us tabulate all the objections advanced by Major Herbert, and set off against them some of the advantages—

Disadvantages	Advantages
1 Possible remote impairment of vision due to vitreous escape	1 Practical elimination of iritis
2 Not proved to be a fact	2 Clearer vision
3 A supposition that a greater degree of astigmatism results	3 Patient cured by one operation instead of two or more
	4 Diminished risk of infection as fewer instruments enter the eye

The three most important advantages are admitted in Major Herbert's article and yet he says "No scrap of evidence has been advanced" in favour of this operation. The practical elimination of ordinary iritis (admitted by Major Herbert) is no slight advantage.

With proper precautions sepsis will always be the exception, and one would naturally expect it to be more infrequent in a large Presidency hospital than in a district dispensary. It is far other wise with ordinary iritis, witness the elaborate directions in books as to the respect with which the iris must be treated to avoid this complication.

Although Major Herbert makes light of any iritis "not severe enough to resist energetic treatment," yet such a state of things represents no inconsiderable suffering on the part of the patient, and a more or less prolonged stay in hospital.

Does Major Herbert find that iritis has no bad effect on the vision even in these mild cases?

To sum up, no evidence has been adduced in support of the assertion that any additional risk is introduced in the "complete operation" whereas the advantages I have enumerated are admitted as facts even by Major Herbert himself.

SEONI,
The 17th February, 1906

J OXLEY, CAPTAIN, I M S
Civil Surgeon

* "A Few Words about Senile Cataracts," Geoff C Hall, F.R.C.S., Colonel, I M S., 1899, p 17
† Loc cit, p 4

HILL DIARRHOEA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I note the query on p 26 of the January issue re prevalence of hill diarrhoea, and the tenor of the article seems to be that it is due to mica in drinking water. The disease does not exist so far as I have noticed in the six years of my experience, at Tura, though the whole mountain side above sparkles with mica. There is an annual outbreak of dysentery at the beginning of the rains, which is usually avoided by those that drink only boiled water. Some of these cases may be "hill diarrhoea," though many of them are true dysentery. The disease does not continue after the rains are established although the water is freely used by natives fresh from surface streams.

TURA.

February, 1906

Yours &c

G G CROZIER, M D

ENLARGEMENT OF THE PROSTATE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—With reference to the correspondence upon this subject in the *Gazette* I may state that at Hoshangabad during 1905, two patients were successfully operated upon by Freyer's Suprapubic method. Assistant-Surgeon B B Gupta being the operator in one case. Both patients were over 60 years of age.

Yours, &c,

February 8th 1906

W H KENRICK,

Captain, I M S

AN OLD ACCOUNT OF YAWS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Apropos of the article on Yaws published in the *Indian Medical Gazette* for February by Mr McCarthy, Civil Surgeon, Lower Chindwin, Burma I beg to send you a verbatim report on the subject, published nearly a century ago in connection with the disease as found in some parts of Africa at that time. It will be observed that the description is an excellent one in all details, and very little seems to be added to our knowledge since. Bacteriology was a minus quantity then and I am not aware now if any special micro organism has been demonstrated yet.

Frambosia

Syn Pian, Yaws, Micosis (Alibert)

Frambosia (Framboise, raspberry) is a disease indigenous in Africa, whence it has been conveyed to the West Indies and America. It is rarely if ever, seen in Britain. It is characterised by the evolution of small red tuberculous tumors, generally distinct from each other at their summit, but connected by their base, and very similar in their form, colour, and size, to a raspberry or mulberry. They appear on surfaces of various extent, and appear on all parts of the surface of the skin, but more frequently on the scalp, the face, the axillæ in the groins, around the anus and on the organs of generation.

Persons of all ages may be attacked, but it is more common in children and young people. It is contagious, and is propagated by the contagion of the matter discharged from the eruption. It is said to affect the same person only once during life. It sometimes appears spontaneously but may take from two to four weeks to develop a tubercle, filth, misery unwholesome food and living in damp dwellings, are its more evident exciting causes. Negroes are more frequently attacked than whites.

The disease begins by solid elevations of a papular nature and their eruption is sometimes accompanied by general symptoms. The affected surface is sometimes of a limited extent, but in a case which came under our observation, it occupied the whole of the front and inferior district of the thigh, the size of the tubercle varying from that of a pea to that of a hazelnut. The vegetations appeared seated in the substance of the dermis which was in a state of hypertrophy and instead of cuticle they were covered with dry, adherent, thin scales. In warm climates, the tumors frequently ulcerate and discharge a fetid ichor, which sometimes forms thick crusts. One of the tubercles generally acquires much larger dimensions than the others, and afterwards forms a foul and sloughy ulcer. This is looked on by the negroes as the mother of the disease and is called by them the Mama pian or Mama yaw. The affection is usually of long duration, and leaves well marked cicatrices, but is not attended by much pain.

Frambosia is propagated solely by the application of the matter discharged from the eruption to wounded surfaces of persons who have not previously passed through the disease. It does not appear to be propagated by effluvia, and, like the febrile eruptions, affects the same individual only once. In Africa it is generally undergone during childhood.

The only disease for which Frambosia may be mistaken is some form of syphilitic tuberculous eruption. These latter often return, their colour is peculiar and characteristic, and they never form fungoid tubercles united by their bases covering surfaces of various extent.

In Africa the natives never attempt to cure this disease until it has reached its height, when the fungi have acquired their full size and no more pustules appear. No remedy has yet been discovered which has any influence over its progress. All, therefore, that is necessary in the first stage is to enjoin a moderate cooling régime. When the disease is on the decline indicated by the eruption beginning to dry and then ceasing to multiply and enlarge, the treatment should consist of a moderately nutritious diet, pure air, proper clothing, and the exhibition of sarsaparilla bark, and the mineral acids in succession, with mild laxatives and alterative doses of mercurials according to circumstances. It is said that the Mastu Yaw sometimes remains large and trouble some after the rest of the eruption has altogether disappeared. It requires to be treated with gentle exhalotics, and soon assumes a healing appearance under these applications. Stronger caustics are requisite for the cure of the Crab Yaw, or tedious excrescences which occur on the soles of the feet. In one such case we saw the actual cautery employed with great success. The different preparations of iodine, with or without arsenic, appear to be indicated in this disease.

Yours, &c,

A MCCABE DALLAS,

22nd February, 1906

D M & Ch, L M, L B C P I

A B.—The above article seems to be written up from reports sent in by Drs Winterbottom and Bateman, and Mous. Brett direct from Africa (Sierra Leone) in the early part of last century. In 1787 there were a large number of destitute negroes in Britain, and the references to negroes and whites in regard to the disease may have occurred in England at that time.—A M C D

THE TREATMENT OF SYPHILIS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I have been lately reading an account of the treatment of syphilis by the intramuscular injection of mercury cream, and as in this and several other books I referred to on the subject, I do not find any mention of a method that I have seen used with considerable success at home, I am writing to ask if this method has been tried in India, and if so, with what results. I allude to the use of "Mercurial Bibs." These consist of two pieces of lint impregnated with some preparation of mercury. They are a German patent and the exact preparation used is not specified, so one can only judge them by results. These two pieces of lint are intended to be worn on the front and back of the chest and are kept in place by an arrangement of tapes. I used to have them sewn on to the front and back of an ordinary vest which the patient wore only at night, the absorption taking place in the same way I suppose as occurs in the case of workers in mercury. I first saw them used in Edinburgh in 1899 and afterwards used them at home in many cases with great success. I have not used intramuscular injections of metallic mercury but found these bibs far superior to the internal method or to inunction as carried out in England. The rapidity with which the primary and secondary symptoms disappeared was marked in comparison with the other methods. The upsetting of digestion, etc. caused by internal administration was avoided and I found that patients who could not be trusted to take their pills, etc. regularly did not mind wearing what to them was only a warm vest at night. This I found especially useful in the case of patients who lived at a distance and who only came in to see me occasionally. Another advantage was the mental one, i.e., they were not reminded of their disease in the same way as by the daily medicine. Patients who after the disappearance of the primary sore often stop taking the medicine will keep on wearing the vests.

The bibs are made in three strengths, and by using the medium strength I found that salvation occurred much less frequently than with the internal method. The bibs seem to be very constant in strength. I used to make patients wear one bib—sewed on successive vests—for two weeks or so, and then stop for a week and then commence again with a new one. I have not used them in India as I have practically

seen no syphilis yet. I should be glad to hear if they have been tried in India

Yours, &c,

W. F. BRAYNE, I.M.S.

[Will others with experience of this, or other method of using Hg in syphilis give us their experiences?—ED, I.M.G.]

DOCTORS IN PARLIAMENT

EVEN medical men, or at least eleven men holding medical qualifications sat in the House of Commons in the Parliament of 1890-1905. They comprised three Unionists Sir Robert Finlay, Sir John Batty Tuke, and Dr. Rutherford Harris; four Liberals, Sir Walter Foster, Dr. Farquharson, Dr. Price, and Dr. Hutchinson; and three Nationalists, Drs. Macdonnell, Ambrose, and Thompson, while the eleventh, Sir Michael Foster, was originally returned as a Unionist but had changed sides a couple of years ago, and was counted among the Liberals at the dissolution.

Several of these gentlemen, though legally qualified to practise medicine, can hardly be considered as doctors. Sir Robert Finlay soon after qualifying left medicine for law, and had been Attorney General since 1900. Dr. Price had also abandoned his original profession for the Bar. Dr. Rutherford Harris was Secretary to the South Africa Company. Dr. Farquharson formerly a medical officer in the Guards, has followed a parliamentary career for over a quarter of a century, having represented West Aberdeenshire since 1880. Sir Michael Foster, the famous physiologist, had never practised as a doctor.

Dr. Farquharson and Dr. Macdonnell did not seek re-election in the new parliament; the other nine all faced the music with success, while three lost their seats. A large number of new medical candidates sought the suffrages of the electors, and the new parliament contains 12 medical men, two Unionists, eight Liberals, and two Nationalists.

Among the curiosities of the late election, in which the Unionists lost about 225 seats, and only won fourteen, it may be remarked that just half of their scanty gains were in seats which they had lost at recent by-elections. But it may also be noted that two, out of the fourteen seats won by the Unionists, were previously held by medical men, while the only medical Unionist who lost his seat was Sir Robert Finlay.

The following, we believe, is a complete list of medical candidates for the new parliament (U—Unionist, L—Liberal, N—Nationalist, I—Independent).

SUCCESSFUL

1. Dr. R. Ambrose (N), West Mayo, unopposed, has held the seat since 1899.

2. Sir Walter Foster (L), Derbyshire, Ilkeston Division, has held the seat since 1887. He was Secretary to the Local Government Board from 1892 to 1895, and was recently created a Privy Councillor.

3. Dr. F. Rutherford Harris (U), Dulwich Division of Camberwell, retained the seat, in which he succeeded the late Sir T. Blundell Maple. He was elected for the Monmouth Burghs in 1900 but unseated on petition.

4. Dr. G. H. Pollard (L), Eccles Division of South East Lancashire, won the seat. Dr. Pollard practises as a barrister; this was his third attempt to get a seat in Lancashire. He stood unsuccessfully for the Southport Division in 1892, his successful opponent on that occasion being Lord (then the Hon'ble G. N.) Curzon, and for the Radcliffe cum Farnworth Division in 1895.

5. Dr. R. J. Price (L), East Norfolk, which he has represented since 1892.

6. Dr. Rolland Rainy (L), Kilmarnock Burghs, won the seat.

7. Sir George Scott Robertson (L), Central Bradford, won the seat. He stood unsuccessfully for Shropshire in 1900. Sir George served in the Bengal Medical Service from 30th March 1878 to 22nd October 1899, and gained his K.C.S.I. for the defence of Chitral in 1895.

8. Dr. H. V. Rutherford Harris (L), Brentford Division of Middlesex, won the seat. He stood unsuccessfully for the Osgoldcross Division of the West Riding of Yorkshire in 1900.

9. Dr. E. O. Thompson (I.N.), North Monaghan. Dr. Thompson's politics have varied a good deal. He stood as a Conservative for North Tyrone in 1892 and 1895 as an Independent Conservative for North Fermanagh in 1898, as a Nationalist for South Tyrone in 1900, all unsuccessfully, and finally got a seat as a Nationalist in North Monaghan in 1900. He has been of a somewhat independent type, being one of the few Nationalists who attended the Coronation ceremony in Westminster Abbey, for which he was opposed at the late election by a more orthodox follower of Mr. Redmond, but retained his seat.

10. Sir John Batty Tuke (U), Edinburgh University, which he has represented since 1900. Sir John is also a member of the General Medical Council.

11. Sir William Collins (L), St. Pancras West, won the seat. An Ophthalmic Surgeon, well known for his work on the London County Council. He stood unsuccessfully for the same seat in 1895, and for London University in 1900.

12. Dr. G. Cooper (L), Bermondsey Division of South walk, won the seat.

UNSUCCESSFUL

1. Sir Robert Finlay (U), lost the seat which he had held in the Inverness Burghs since 1886, with the exception of the years 1892 to 1895, was Solicitor General from 1895 to 1900, and Attorney General since the latter year.

2. Dr. J. Coult (U), North East Derbyshire, had unsuccessfully contested the same seat in 1895 and 1900.

3. Dr. E. M. Crookshank, East Grinstead Division of Sussex, lost the seat previously held by a Conservative.

4. Dr. R. Dawson (U), East Edinburgh, failed to win the seat.

5. Dr. C. H. Dixon (U), Market Harborough Division of Leicestershire, failed to win the seat, which he had also contested without success in 1900.

6. Sir Arthur Conan Doyle (U), Hawick Burghs, failed to win the seat. The well-known novelist. He unsuccessfully contested Central Edinburgh in 1900.

7. Surgeon General G. J. H. Ewart (L), Farnham Division of Hampshire. Recently retired from the Army Medical Staff, unsuccessfully contested Woolwich in 1886.

8. Sir Michael Foster (L), London University, lost the seat, which he had held since 1900.

9. Dr. A. Hilhor (U), Luton Division of Bedfordshire, failed to win the seat, stood unsuccessfully for Stockport in 1900.

10. Dr. S. R. Keightley (I), South Londonderry, failed to win the seat, which was retained by a Unionist. Is the author of several successful novels, stood as a "Russellite."

11. Lieutenant Colonel A. H. Morgan (U), Isle of Wight, failed to win the seat. Recently retired from the R.A.M.C.

12. Dr. H. A. O'Neill (U), South Belfast, failed to win the seat, which was retained by Mr. T. H. Sloan, an Independent Unionist.

13. Professor W. R. Smith (U), Glasgow University, failed, the seat was held by another Unionist, Sir Henry Craik.

By the return of Sir George Robertson for Central Bradford, the Indian Medical Service is again represented in Parliament. Very few retired members of the I.M.S. have sat in the House of Commons, we can only remember the names of three. Of these three, by far the best known is Joseph Hume, the once famous Radical. He served in the Bengal Medical Service from 27th August 1799 to February 1808, when he retired (after eight and a half years' service), with a fortune of £40,000, made out of contracts for the supply of the army. He entered Parliament as member for Weymouth, which he represented from January to September 1812, and afterwards sat as member successively for the Montrose Burghs from 1818 to 1830, for Middlesex from 1830 to 1837, when he was defeated by 97 votes, for Kilkenny town from 1837 to 1841, and for the Montrose Burghs again from 1841 to his death in 1855. Up to 1819 he sat as a Tory, after that year as a Radical.

The other two were Sir John James Trevor Lawrence, the Treasurer of St. Bartholomew's Hospital who served in the Bengal Medical Service from 20th January 1854 to 20th February 1886 and sat for Mid Surrey as a Conservative from 1875 to 1888, and for the Reigate Division of Surrey from 1885 to 1892, when he retired from Parliament, and Sir William Gwyer Hunter, who entered the Bombay Medical Service on 21st February 1850, retired in 1880 and represented Central Hackney as a Conservative, from 1885 to 1892, when he retired.

A few other men have, during recent years, tried to enter Parliament without success. The late Sir Joseph Ewart stood for Brighton as a Liberal, in 1895. The late Brigade Surgeon J. E. T. Aitchison stood as a Unionist for Clackmannan and Kinross Counties in 1892 and Lieutenant-Colonel Oliver Duke contested South Bedfordshire as a Unionist, three times, twice in 1892, and the third time in 1895. He got a little nearer each time, pulling down the Liberal Majority from nearly 1,000 to under 200, but a Unionist has never yet succeeded in getting the seat. All three were retired members of the Bengal Medical Service.

In a Gazette which is Indian as well as medical it may be of interest to give a list of the Anglo-Indians who have sought seats in the House of Commons at the recent election. Out of the nineteen candidates, fifteen, including all the ten successful, stood as Liberals.

SUCCESSFUL

1. Sir George Robertson (L), Central Bradford, won the seat. It is curious to see the "Prancing Proconsul" of ten years ago, (we believe the Radical press invented the name for Sir G. Robertson's special benefit), entering Parliament as a Radical.

2 Sir Henry Cotton (L) East Nottingham won seat. Well known in India as Chief Secretary to the Government of Bengal, and afterwards Chief Commissioner of Assam

3 Mr Donald Smeaton (L), Stirlingshire, won seat Formerly Financial Commissioner in Burma

4 Colonel Ivor Philipps (L), Southampton won seat Formerly in the 5th Gurkhas

5 Harold Cox (L), Preston, won seat Formerly Professor of Mathematics at the Aligarh College, and now Secretary to the Cobden Club

6 J D Rees (L), Montgomery Boroughs, won seat Formerly of the Madras Civil Service, was Private Secretary to Lord Connemara, Resident in Travancore, and member representing Madras in the Legislative Council of India

7 C J O'Donnell (L), Walworth Division of Newington, won seat Retired from the Civil Service a few years ago as a Commissioner in Bengal Mr O'Donnell earned notoriety early in his service as the author of the famous "Black Pamphlet," "Behar, or the Ruin of an Indian Province" an attack on the famine administration of Sir Richard Temple in the Behar famine of 1874 His brother, Mr Frank Hugh O'Donnell, was a well known Nationalist member a quarter of a century ago, and, though Mr O'Donnell enters Parliament as a Liberal, probably his politics are much the same as those of his brother

8 J A Bryce (L), Inverness Burghs, won seat, defeating the Attorney General, Sir Robert Finlay An Indian merchant, brother of the Right Hon'ble J Bryce, Chief Secretary for Ireland

9 Sir John Jardine (L), Roxburghshire, won seat, which he contested unsuccessfully in 1900 Formerly of the Bombay Civil Service and a Judge of the Bombay High Court

10 T Hart Davies (L) Hackney won seat Formerly of the Bombay Civil Service, Judicial Commissioner of Sind Is said to have been the author of "India in 1883," a successful political skit which created some stir in 1883, the year of the Ilbert Bill If this be true, his views have considerably altered since then, for he is now a member of the English Committee of the Indian National Congress, unsuccessfully contested the Rotherhithe Division of Southwark in 1900

UNSUCCESSFUL

1 Sir Muncherjee Bhowmuggree (U), Bethnal Green, North East Division, lost the seat, which he had held since 1895

2 Sir Joseph West Ridgway (L) City of London, failed to win the seat, being defeated by over 10,000 votes the highest majority on record up to date, though Mr Balfour's majority in the City, a month later, over Mr Gibson Bowles, was some 2,000 larger Formerly of the Indian Army served on the Afghan Boundary Commission of 1884-85, was Agent to the Governor General in Rajputana, and latterly Governor of Ceylon

3 Dadabhai Naoroji (Labour) North Lambeth, failed to win the seat, which was captured by the Liberal candidate A Parsi merchant, resident in London, stood unsuccessfully for the Holborn Division of Finsbury in 1886, won the seat in Central Finsbury in 1892, but lost it again in 1895

4 M C Malik (L), St. George's, Hanover Square, failed to win the seat A resident of Calcutta, a Barrister by profession

5 Colonel C E Yate (U) Pontefract, failed to win the seat Of the Indian Army, Political Department, lately Chief Commissioner of Baluchistan

D G C

Service Notes

THE EXAMINATION FOR LIEUTENANTS, I M S

IN reply to our request for a copy of the questions set for the promotion examination for Lieutenants, I M S which we made in our issue for February a correspondent has kindly forwarded the following, which were those set at a recent examination It will be seen that the questions are entirely military and not in any degree medical (*Jo hukm*). Another correspondent writes in answer to our query "I advise candidates to take the whole examination at one time and it is of much importance to get it done as soon as possible after 18 months' service has been completed

The examination, which is not difficult, is divided into three parts known officially as H II, H III and D II

For H II and H III, Indian Army Regulations, Vol II and Vol VI with appendices should be read, together with Field Departmental Code—Medical, in the latter book stress is laid on the composition of various field medical units H II consists of a paper of four questions, taken from the above books, on the duties of executive medical officers in charge of

military medical units and H III on the duties of the subordinate personnel of military hospitals. This paper contains also four questions, and 3 hours are allowed for each paper A knowledge of all recent Indian Army Orders bearing on the subject is essential and it is advisable to make out a list of all returns and indents that are submitted by military medical officers and to possess a copy of each

Indian Military Law (D II) is extremely easy a working knowledge is required of the 'Indian Articles of War' and 'Rules of Procedure' These books may be taken into the Examination Room and 15 questions have to be answered in three hours with the aid of the above books, which are the only ones necessary

QUESTIONS

SUBJECT H III

1 What are the rules governing questions of medical attendance on Government servants and their families?

2 Discuss the principles which govern the organisation of the Medical Service in the field

3 What is the "order of march" of a field hospital, and what duties in connection therewith would devolve on medical officers?

4 Sketch what your duties would be as senior medical officer of a Station

SUBJECT H II

1 Detail the duties of Army Bearers Corps men attached to hospitals

2 Mention the different classes of subordinate personnel attached to Native General Hospitals, and their respective duties

3 Under what circumstances are combatant non commissioned officers attached to Native Military Hospitals, and what are their duties?

4 Detail the duties which a Hospital Assistant, in subordinate medical charge of troops marching within Indian limits, would be required to perform

SUBJECT (D) II

Military Law

For Officers of the Supply and Transport Corps and officers of the Indian Medical Service

(Note—The following books only will be allowed in answering this paper The official editions of the Indian Articles of War and of the Rules of Procedure (Native Army) and Army Regulations India Volume II)

1 State briefly the law and the regulations regarding the trial of offences by Court Martial or by the civil power in cases in which a military and a civil court have concurrent jurisdiction

2 In what case does a Court Martial under the Indian Articles of War perform duties analogous to those of a Court of Inquiry? What powers are possessed by such Courts?

3 A Native soldier who is under orders for trial by a District Court-martial, claims to be tried by Native Officers Is it optional with the Convening Officer, in these circumstances to direct that the Court shall be composed of British Officers?

4 What is the prescribed procedure in the case of the loss, before confirmation of the proceedings of a Court-Martial?

5 Describe the correct procedure of a Court Martial which finds that (a) the prisoner is unfit, by reason of insanity, to take his trial, (b) the prisoner committed the offence with which he is charged, but was insane at the time of its commission

6 To whom do the Indian Articles of War give the power to set aside the proceedings of Summary Courts Martial? Explain, with two examples the reasons for which such Courts Martial may be set aside

7 In what case are forfeitures of arrears of pay and allowances an obligatory part of a Court Martial sentence?

8 A Native soldier undergoing a sentence of four months' imprisonment with hard labour in a civil jail is required as a witness before a Court Martial How can his attendance be procured?

9 Under what circumstances can a Court Martial award imprisonment for a longer period than two years?

10 Frame a charge against Naick Bakar Din, 176th Infantry, who falsely complains to the Subadar Major of his regiment that Jemadar Shakor Khan, the native adjutant has kicked him

11 In confirming a sentence of imprisonment with hard labour for two months, to be undergone in military custody the Confirming Officer (the Officer Commanding a Brigade) considers the punishment inadequate Can he order that the offender, in addition, be dismissed from the service? If so, on what authority?

12. What main principles are to be observed in framing a charge with regard to (a) the statement of the offence, and (b) the statement of the particulars?

13 On being tried by Court Martial for absence without leave, a sepoy pleads that he was detained at his home as a witness in a civil suit, and requests that the Deputy Commissioner of his district be referred to. The Court ignore the request, and the prisoner is convicted and sentenced. What course should the Confirming Officer adopt?

14 When a Native soldier has been struck off the strength of his regiment following on a sentence of imprisonment with hard labour for more than three months, by what means and by whose authority can he be re-admitted to the service?

15 Define the word "assault" as used in Article 8 of the Indian Articles of War, and distinguish it from a "use of criminal force."

SURGEON MAJOR—GENERAL WILLIAM FREDERICK DE FABECK, late of the Madras Medical Service died in London on 28th January 1906. He was educated at Edinburgh University took the M.R.C.S. in 1855, and subsequently the M.D. of Edinburgh in 1873. Entered the Madras Medical Service as Assistant Surgeon on 29th January 1857, became Surgeon on 29th January 1869, Surgeon Major on 1st July 1873, and Surgeon Major General on 29th May 1890. He was granted a good service pension on 9th December 1891, and retired on 18th May 1894. Before entering the I.M.S. he served in the Crimea, and was present at the siege and capture of Sevastopol, taking part in the assault on the Redan for which he received the Crimean medal with clasp. He also served in the Mutiny in 1857-58.

His brother, Frederick William Alexander de Fabeck, who entered the Bengal Medical Service on 23rd July 1858, and retired on 24th April 1884, is still among those on the retired list of the I.M.S. This list contains the names of no less than 26 officers of the Madras Service senior to the late Surgeon Major General de Fabeck, while there are still left 66 retired Bengal officers senior to his brother.

THE appointment of Major Leonard Rogers, F.R.C.P. I.M.S., to be Milroy Lecturer, for 1907 is the first of the kind to be given to an I.M.S. officer on the active list. Previous I.M.S. officers who held similar appointments were, Sir J. Fayrer, Bart., who was Lettleson Lecturer, 1831, subject Dysentery, and Croonian Lecturer, 1882, subject, Climate and Fevers of India, C. Murchison, Croonian Lecturer, 1873, and N. C. Macnamara Bradshaw Lecturer, 1895. All these appointments were made after these officers had retired from the I.M.S.

MILITARY ASSISTANT SURGEON R. T. RODGER is appointed to officiate as Civil Surgeon of Buldana District, C.P., vice Hon. Captain J. Morrison, I.S.M.D., retired.

DR. O. W. JONES, Civil Surgeon, Basim, C.P., has retired.

THE services of Captain C. L. Dunn, I.M.S., were replaced at the disposal of the Government of India with effect from the afternoon of 19th August 1905.

LIEUTENANT COLONEL S. J. THOMSON, C.I.E., Sanitary Commissioner, U.P., is permitted to return to duty from leave.

CAPTAIN R. D. SAIGOL, M.B., F.R.C.S., I.M.S., on transfer from India was put on special plague duty at Bassein, Burma, on 9th February.

THE services of Captain W. M. Houston, I.M.S., are placed temporarily at the disposal of the Government of Bombay.

THE services of Lieut. A. Whithmore, I.M.S., are placed temporarily at the disposal of the Government of Burma.

MAJOR J. B. JAMESON, M.B., I.M.S., is granted two years' combined leave.

THE *Lancet* writes as follows—"VARICOCELE AND CANDIDATES FOR THE ARMY." We understand that the discussion with regard to varicocele as a disqualification for army candidates which has recently taken place in THE LANCET and the service newspapers has had the effect of inducing the authorities to modify the rules which have hitherto been in force. The text of the new regulations has not yet been published, but there is every reason to believe that the proposed alterations will lead to the acceptance by the Army Medical Board of many candidates who would have been disqualified under the old rules."

CAPTAIN F. D. BROWNE, I.M.S., is granted 11 months combined leave, and Captain H. M. H. Melhuish, I.M.S., acts for him as Superintendent, Central Jail, Jubbulpore.

MAJOR R. H. CASTOR, I.M.S., on being placed on special Plague duty in the Bassein district, made over, and Captain P. Dee, I.M.S., on return from leave, assumed charge of the

Civil Surgeoncy, Bassein district, on the afternoon of the 30th January 1906.

WITH reference to Notification No. 61, dated the 30th January 1906, senior class Military Assistant Surgeon E. J. Murphy assumed medical charge at Tiddim, Chin Hills, on the forenoon of the 13th January 1906.

MAJOR ERNEST ROBERTS, M.B., I.M.S., is confirmed in his appointment as Secretary to the Director General, I.M.S.

SURGEON GENERAL L. D. SPENCER, C.B., M.D., I.M.S., retired, recently Surgeon General, Punjab Command, has been appointed an Honorary Surgeon to the King, in place of Surgeon General J. M. Cunningham, deceased.

CAPTAIN R. W. ANTONY, I.M.S., having gone to Civil employment, Captain W. H. Cazaly, I.M.S., is appointed to the medical charge, 125th Napier's Rifles.

LIEUTENANT COLONEL K. H. MISTRI, I.M.S., is granted privilege leave of absence for three months from the date of relief.

LIEUTENANT COLONEL O. H. CHANNER, M.B., C.M. (Ed), D.P.H., I.M.S., is granted such privilege leave of absence as may be due to him on 1st April 1906, or subsequent date of relief, in combination with furlough on medical certificate for such period as may bring the combined period of absence up to six months.

CAPTAIN S. EVANS, M.B., I.M.S. is granted such privilege leave of absence as may be due to him on 24th February 1906, or subsequent date of relief, in combination with furlough on medical certificate for such period as may bring the combined period of absence up to twelve months.

HIS Excellency the Governor in Council is pleased to appoint Major T. E. Dyson, M.B., C.M., D.P.H., I.M.S., to act as Sanitary Commissioner for the Government of Bombay, in addition to his own duties, vice Lieutenant-Colonel O. H. Channer, M.B., C.M., D.P.H., I.M.S., proceeding on leave, pending further orders.

HIS Excellency the Governor in Council is pleased to appoint Captain A. Hooton, M.B., C.M., I.M.S., on relief by Lieutenant-Colonel W. A. Corkey, I.M.S., to act as Assistant Surgeon to the David Sassoon Hospital and Assistant to the Civil Surgeon, Poona, vice Captain S. Evans, M.B., I.M.S., proceeding on leave, pending further orders.

HIS Excellency the Governor in Council is pleased to appoint Assistant Surgeon Khán Bahadur Framroz Aidesai Moos, L.M.S., to act as Civil Surgeon, Thana, and Superintendent, Narotamdas Madhavdas Lunatic Asylum, Nanpada, during the absence on leave of Lieutenant Colonel K. H. Mistri, I.M.S., or pending further orders.

COLONEL R. MACRAE, M.B., I.M.S. (Bengal), is confirmed in the appointment of Inspector General of Civil Hospitals, Bengal, with effect from the 29th April 1906.

COLONEL W. G. KING, M.B., C.I.E., I.M.S. (Madras), is confirmed in the appointment of Inspector-General of Civil Hospitals and Sanitary Commissioner, Burma, with effect from the 29th April 1906.

MAJOR J. C. LAMONT, M.B., I.M.S. (Bengal), Professor of Anatomy, Lahore Medical College, is granted furlough out of India from the 20th March 1906 to the 30th June 1907.

CAPTAIN G. W. CHARLES, M.B., I.M.S. is appointed to officiate as Professor of Anatomy, Lahore Medical College, during the absence on furlough of Major J. C. Lamont, M.B., I.M.S. (Bengal), or until further orders.

REWARDS—It is notified for information that the Chapter General of the Order of the Hospital of St. John of Jerusalem in England has, on the recommendation of His Excellency the Commander in Chief, conferred the medal awarded by the Order for distinguished acts of gallantry in saving life on land, at imminent personal risk, on the undermentioned officers and men, in recognition of the intrepidity displayed by them on the occasion of the earthquake which occurred at Dharmasala on the 4th April 1905.—

Silver Medals

Major Patrick Hehli, Indian Medical Service

CAPTAIN E. D. W. GREIG, M.B., I.M.S., was placed on special duty, under the orders of the Secretary of State, for one month and seven days. This period is exclusive of the leave granted to him in the Home Department Notification No. 1183, dated the 26th October 1905.

CAPTAIN V E H LINDESEY I M S, who was granted combined leave for 13 months and 20 days, reported his departure from India on 17th November. We are glad to hear that he has been considerably better since his return home.

MAJOR F O'Kinealy, I M S, was confirmed in his appointment as Civil Surgeon of Darjeeling from 23rd September, *vice* Major F P Maynard, I M S, F R C S

LIEUTENANT COLONEL R. J BAKER, M D, I M S, is granted such combined leave and study leave (3 months) as may bring the combined period of absence up to 12 months

MAJOR B B Grayfoot, M D, I M S, on relief, to act as Civil Surgeon, Karachi, during the absence on leave of Lieutenant Colonel R J Baker, M D, I M S or pending further orders

MAJOR J G Hojel, M B, B.S., I M S, to act as Presidency Surgeon, Second District, Bombay, and Marine Surgeon, in addition to his own duties, pending further orders

CAPTAIN A F W King, I M S to act as Superintendent, Lunatic Asylum Calaba, in addition to his own duties, pending further orders

LANGUAGES—INDIAN—In continuation of India Army Order No 154 of 1905, it is notified for information that the 'Collection of Specimen Papers set by the Board of Examiners, Calcutta in 1904-05,' is now ready for issue, and is obtainable from the Secretary to the Board of Examiners, 26, Mango Lane, Calcutta, at Rs 3 a copy

PENSIONS—OFFICERS—In future all applications for the grant or renewal of a wound pension or gratuity from officers in India in respect of wounds or injuries sustained while serving under the War Office, shall be forwarded with all necessary documents and the report of the Controller of Military Accounts concerned, to the War Office direct, for decision by the Army Council

MEALS—LOST—It is notified that the War Office have approved of the adoption, as a permanent measure, of the rules laid down in India Army Order No 70 of 1905 for the investigation of claims for the replacement of lost medals

2 Paragraph 2042, King's Regulations, will be amended accordingly

MEDICAL DEPARTMENT—AMBULANCE—The Government of India have sanctioned the appointment of one bearer per company of the Army Bearer Corps as a clerk, with extra duty pay at the rate of Rs 18 a month. Clerks need not belong to the bearer castes prescribed in the authorised class composition of the corps. No addition will be made to the present establishment of bearers on this account.

2 Clerks should not be appointed during the current financial year, unless the expenditure can be met by appropriation.

The Gazette of India (February 21th) announced the promotion of Captain H St I Fraser, I M S, to be Major, dated 29th January 1906

CAPTAIN H BENNETT, M B, F R C S, of the batch of 29th January 1894 was promoted to Major from 24th July 1905, that is, he received six months' accelerated promotion

There remain eight other officers whose date of commission dates from 29th January 1894, whose promotion has not yet been gazetted at time of writing

The following Lieutenants are promoted to be Captains, I M S —

William Samuel Jagoe Shaw, M B
Charles Seymour Parker, M B, F R C S
Harold Holkar Broome, M B
Frederick Norman White, M B
Charles Gibbons Seymour
Davis Heron, M B
Thomas Corrie Ruthenford, M B
Henry Crewe Keates, M B
Leethem Reynolds
Ernest Charles Taylor, M B
Richard Arthur Needham, M B
Dwarkan Prasad Gail, M B
James Kirkwood, M B
Alfred Whitmore, M B

CAPTAIN H A WILLIAMS I M S, is placed on special Plague duty in Burma, and Captain W P O'G Laloi, I M S, is appointed to act as Deputy Sanitary Commissioner, Rangoon

MAJOR H A SMITH, L M S, Civil Surgeon, U. P., has received six months' extension of leave on medical certificate.

CAPTAIN W M HOUSTON M B, I M S, is appointed to act as Personal Assistant to the Surgeon General with the Government of Bombay

CAPTAIN J H McDONALD, M B, C.M., I M S, acts as Presidency Surgeon, 2nd District, and Marine Surgeon, Bombay

FOUR books by I M S officers are announced, *viz.*, Major, A E Roberts Monograph on Enteric Fever in India, Major Newman's Aseptic Surgery, Captain Gordon-Tucker's Management of a Plague Epidemic, and Captain Windsor's Indian Toxicology. The publishers are Messrs Thacker, Spink & Co, Calcutta.

WE are glad to see the K C V O granted to Lieutenant Colonel R Havelock Charles, I M S, F R C S I, Professor of Surgery in the Calcutta Medical College, and recently in medical charge of H R H The Prince and Princess of Wales. Sir Havelock Charles has gone on long leave, and his place at the Calcutta College will be filled by Major R Bird, F R C S, C I F I M S, who is returning from furlough

THERAPEUTIC NOTES AND PREPARATIONS

We have once before called attention to the high character of **PACKER'S TAR SOAP** which has received an enormous number of testimonials from the leading dermatologists in Europe and America. Packer's Tar Soap is bland and unirritating and is made from pine tar, glycerin and sweet vegetable oils

Shoemaker of New York, has strongly recommended it for use in shampooing and Dr S. C Martin, of St. Louis, advocates its use in chronic seborrhoea capitis. It is also used by Lassar of Berlin in his treatment for dandruff and baldness. It can be obtained from Kemp & Co, Bombay, and Bathgate & Co, Calcutta. It is a good soap even for every day use

MESSRS SMITH, STANISTRETT & Co, Calcutta, can forward samples and literature on the use of alphozone in typhoid fever. It can be supplied either in powder or in tablets.

Notice.

SCIENTIFIC Articles and Notes of Interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker Spink & Co Calcutta.

Annual Subscriptions to *The Indian Medical Gazette*, Rs 12, including postage, in India Rs 14, including postage, abroad

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Dr Kenny of Melbourne, Lt Hortness, Lieut Brodribb, Dr Neve, Srinagar, Col Hamilton, I M S, Ambala, Major Fischer, I M S, Dehra Doon, Capt. Leo Abbott, I M S, Nowgong, Major Hall, I M S, Sylhet, Capt. Gordon Tucker, I M S, Bombay, Dr Francis Hare, London, Dr Macphail, Jhajha, Dr Wanless Miraj, Major Sutherland, I M S, Nowgong, Dr Fermio Calcutta, Lt. Col Grayner, M B, Moznifpur, Major Vaughan, I M S, Calcutta, Capt D McCay Calcutta, Capt Thurston, I M S, Calcutta, Major Barry, I M S, Maymyo, Lt Col Stevenson I M S, Hyderabad (Sind), Capt. Jendwine I M S, Lt. Col Adlo, I M S, Ferozepore, Major H Smith Jullundur, Lt R D Mac Gregor I M S, Bellary, Capt Robertson Milne, I M S, Lahore, Major W Jennings, I M S, Matheran

BOOKS, REPORTS, &c, RECEIVED —

Indian Toxicology, Capt J V Windsor, Thacker, Spink & Co Calcutta Past and Present. K Blebynden, Thacker Spink & Co Calcutta The Nausea Treatment. Thorne Thorne, Balliere, Tindall & Cox Gile's Gynaecological Diagnosis. Balliere, Tindall & Cox J Bell's Surgery for Nurses 6th Edition. Oliver & Bond Administration Report, Punjab The Beluchistan Agency Report Cerebro spinal Fever in India. Capt Robertson Milne Scientific Memoirs Antityphoid Vaccine Scientific Memoir Mediterranean Fever in India. The Report of the Pasteur Institute, Kasauli

Original Articles.

ON THE EARLY OCCURRENCE OF ADIPOCERE

BY J C VAUGHAN, M B,

MAJOR, I M S,

Professor of Medical Jurisprudence, and Police Surgeon, Calcutta

It has long been taught that adipocere forms some considerable time after death has occurred. In Taylor's "Principles and Practice of Medical Jurisprudence," edited by F J Smith, 1905, Vol I, p 311, is a summary of the views held in this matter by medical jurists in Europe. The shortest period, vouched for in this statement, within which adipocere may occur is five weeks, and the author adds—"There is no doubt, however, that the process may take place partially in the dead body within much shorter periods than these."

The Editorial article in the *Indian Medical Gazette* for June 1902 is quoted in full on pp 314 to 316 of Taylor's book and there is no comment made on it. I trust that the details of the five cases now offered may strengthen the position taken up on this question by medical jurists in India. When I was in Calcutta in 1902 as Police Surgeon, I remember this question was much discussed by some of us, and it was urged that cases of the kind published by Mackenzie, Mon, and Ashe, should, whenever possible, be supported by chemical analysis. In all the cases now published I have observed this precaution, and such details as the time and manner of death, and the date and hour of post-mortem examination have not only been long on record, but have been sworn to in court in the witness box.

Case I—A European, D M, on 1st January 1903, slipped on a gangway while going ashore from his ship and fell into the Hooghly. His body was recovered on the afternoon of the 8th January, and I performed the post mortem examination on the 9th January. In this case I noticed that there was comparatively little odour of putrefaction and the muscular tissues of the thoracic parietes, part of the mesentery, the skin from over the umbilical region, the fat and fascia from the supra-pubic region and the meat in the contents of the stomach appeared to me to show traces of saponification, and my opinion was confirmed by Major C H Bedford, I M S, Chemical Examiner, the same officer who is mentioned on p 316 of Taylor's "Medical Jurisprudence" in the quotation from the article of the *Indian Medical Gazette* of June 1902.

My next four cases are remarkable for the circumstance that in none of them had the body been buried. In this respect they are interesting

for the light they throw on the old opinion that if a body be not buried it cannot saponify. Such an opinion was actually expressed in 1805 in a case which is still quoted on p 312 of Taylor's "Medical Jurisprudence." The Editor of that work, however, quotes a case of his own in which saponification was noted in the body of a "child that had been kept six months in a bandbox under a bed."

My cases are as follows—

Case II—D R, a woman, aged about 45 years, was last seen alive, by a neighbour living next door, on the 23rd July 1902. Next morning the main door of D R's room was found closed and secured by a padlock and chain, and as the neighbours thought that she had, as was her wont, gone off somewhere for a day or two, they took no further notice of her absence. About noon of the 26th, some of them, however, noticed a smell from near her door and called in the police, who broke into the room, and found the body in the bed, covered with bedding and heavy pillows, with the head practically severed from the trunk. The room had been obviously ransacked, and it was clear that the woman had been murdered and that her murderer had locked her in and escaped. In this case I find in my notes that there was no smell to speak of. The pectoral muscle and lungs appeared to me distinctly saponified, and portions of them were sent to Major C H Bedford, who again confirmed my opinion on chemical analysis of the material sent to him. This woman had been murdered on the night of the 23rd July and the post-mortem was performed at 11 A.M. on the 27th July. It would appear that in all probability the deed was done about midnight, so that from the time of death to that of the post-mortem examination a period of 84 hours only had elapsed and the body had not only not been buried but lay in a dry bed in a room, and not exposed to the influence of weather.

Case III.—On or about the 24th May a man was murdered and left lying dead in an empty hut in a plantation of trees and shrubs. On the 29th of the same month I made the post-mortem examination, and again noticing that there was remarkably little of a foul odour from a body so long dead, I suspected commencing saponification and discovered it in the tissues of the thoracic and abdominal parietes and in the lungs and omentum, portions of which I sent for chemical analysis to Asst-Surgeon Chunilal Bose, F.C.S., one of the Chemical Examiners to Government, who has charge of the Medico-Legal Section of the Chemical Examiner's Department in Calcutta, and who had also examined the tissues in the two previous cases. His report says "There was distinct evidence of partial saponification in the tissues you sent me for examination."

This man had been dead for about five days, and had not been buried, and the

corpse had lain almost absolutely naked on its face on the ground in the hut, in dry weather

Case IV—On the night of the 30th January a fire occurred in certain premises in Calcutta and the place was much damaged, and it took a long time to clear away the debris. In one part of the premises destroyed by the fire, was a store room containing shellac which had also been destroyed, and in a dry cemented shallow drain within this store room, there was found on the evening of the 5th February 1906, the body of a man, recognized as an employee on the damaged premises. I performed the post-mortem examination on the morning of the 6th February, and again suspected commencing saponification. The body was a trifle swollen, the face seething with maggots, and occasionally there escaped from the mouth and nostrils bubbles of gas with a strong ammoniacal odour, but there was very little, if any, of the ordinary odour of putrefaction. The body was scarcely charred, and death appeared to have been due to suffocation in the store room. There appeared to me to be distinct traces of saponification and I sent portions of the thoracic and abdominal parietes, chiefly muscular tissues, and parts of the omentum to Assistant-Surgeon Chunilal Bose, who again returned a report to say that the tissues sent him responded to the most important tests for adipocere, and later on in conversation he distinctly stated that the tissues undoubtedly showed clearly distinct traces of partial saponification. This man was not a fat subject, but a lean, hard-working man. I do not wish for the present to do more than just to place these cases on record. They have occurred at all times of the year—in the beginning and in the end of January in the coldest weather, in May in the hottest and driest weather, and in the end of July, well in the full of the rainy season. Ever since the discussions of 1902, I have pursued this matter with great care and I take this opportunity of very gratefully acknowledging the prompt and ready help given me by the Chemical Examiners named, for it appears to me that their assistance has gone far towards placing these cases of mine beyond the region of doubt or question, and their evidence is all the stronger, for in not one single case did I give them any detail of the case they were examining till after their report was given me on the analysis finished. These instances of early saponification have come to light in the course of something like between 700 and 800 post-mortem examinations performed by myself in 1902-3 and 1905-6, and I have little doubt that with further opportunity more cases will come to light. One great feature about cases of early saponification is that there is very little of the ordinary odour of putrefaction from the body, and this has so far been my guide in selecting bodies for observation for this condition. This point has, I think, also a certain medico-legal importance, for

in one of my cases at least, the neighbours distinctly stated that they had no idea that a body had been lying so close to them for so many days as they "had never noticed any bad smell."

It would also appear from Case II that Dr. Ashe's limit is not to be considered final, viz., "that adipocere can begin to form in India four days after death under conditions where the body was buried in a shallow grave covered with nine inches of water," for the cases I have now put on record would show (1) that *burial is quite unnecessary for the formation of adipocere*, and in this I am supported by the Editor of Taylor's "Medical Jurisprudence," Vol I (1905), p 311, and (2) that *as early as 84 hours after death the formation of adipocere has actually been shown to have been clearly evident, not only to chemical analysis but also to observation before such analysis*, and that, too, in a body which had neither been buried nor exposed to the outside air and influence of the weather, but which had lain in bed covered over with bedding and in a closed room. That in these cases saponification was only slight and not advanced is only what may, having regard to the short period of time between death and post-mortem examination, be reasonably expected. The great point is that the saponification was distinct, and sufficiently distinct actually on the post-mortem table to have induced me to invite in each case the ordeal of chemical analysis.

Case V—The body of a female foetus of about 7 months, measuring 17 inches long and weighing 2lb 13oz, was found on the 4th March, 1906 floating in a tank. The scalp of the right temple had been gnawed away by some animal, the cranial sutures had given way and the brain was protruding at this spot. *Vernix caseosa* was plainly visible, the cord was not decomposed and the internal organs were partly decomposed but still sufficiently intact to make it clear that the lungs were in a condition of foetal atelectasis.

The protruding portion of brain seemed to me to be adipoceros, and I removed it and sent it together with other tissues for analysis. The Chemical Examiners in this case were Captain J. Black, I.M.S., Assistant-Surgeon Chunilal Bose, F.C.S., and they both declare that there is no doubt whatever about it, the brain clearly showed all the reactions of adipocere. Judging from the condition of the body, the latter could not have been dead more than two or three days at the outside, for the umbilical cord was still comparatively fresh. The special interest attaching to this case however is the fact that the brain was adipoceros, and that it was the brain of a foetus, an organ which putrefies so very soon after death, especially in India at the time of year—March—at which the case occurred, and that the brain was the only organ thus affected!

OPERATIONS FOR CATARACT.

By R. H. ELLIOT, M.B. (Lond), I.R.C.S. (Eng),
MAJOR, I.M.S.

Ophthalmic Surgeon, Madras

I HAVE been repeatedly asked by medical officers in S India, why, in view of the fact that I have not changed my methods, I have taken no part in the controversy raised by Major Smith's interesting papers. My reason has been that I have preferred to look on and listen. As the Editor of the *Indian Medical Gazette* has definitely asked me to state my views, I feel that were I not to do so, it might be thought that I felt there was only one side to the case, which is very far from being my position.

The essential point in the whole controversy is to ascertain whether the advantages of the intra-capsular method outweigh what some of us at least conceive to be its drawbacks. On this matter my mind is far from being made up. I think with many others that Major Smith has made a strong case, and with all alike I admire his energy and enthusiasm. What I do take exception to, is the fact that he has supported his contention by statements which, so far as my experience goes at least, are decidedly incorrect. I have no desire to lose the main issue in a mass of verbiage, but I cannot, while dealing with the subject, allow some of the statements to pass unchallenged, lest others should think that they are *ipso facto* accepted. I will, therefore, take up these in turn. I am referring to Major Smith's paper published in the September 1905 number of this journal. The italics are my own throughout. Major Smith says "The vitreous seems to repair as well as any other tissue, and why should it not?"

It could not fail to be of interest if the writer of those lines would publish the grounds for his opinion. The Duke Charles of Bavaria, Dr. Hæmers of Ghent and others have endeavoured to prove that a true regeneration of lost vitreous can and does occur. I think I am in accord with the majority of ophthalmologists, when I say that their writings have left us unconvinced, much as we should like to believe them. That a fluid exudation takes place (possibly from the retina as Hæmers maintains), and thus re-establishes the tension of the eye, no one doubts, but unless Major Smith has some new light to shed on the subject, I think he will find that the verdict of ophthalmologists will be "non-proven." As a contribution to the argument on the other side, one may quote Parsons'* words "The vitreous is an inert jelly-like structure, which subserves optical functions. In pathological conditions, so far as is known, it is purely passive. It is, therefore, advisable to avoid such expressions as 'shrinking of the vitreous,' etc, which imply an activity which it

does not possess, and it is incorrect to use such terms as hyalitis, &c." It is difficult to believe that such a structure would be easily replaced, if lost.

Major Smith admits that escape of vitreous is "much dreaded," but he states that he has "seldom seen evil consequences from it." There is no question that this accident is much dreaded. I had the opportunity of discussing it with many of the leading ophthalmologists of Europe, and there could be no doubt of their attitude. Be it remembered that European surgeons work under very different conditions from ours. They can follow a very large percentage of the cases that they operate on for years, and they make a point of so doing. Major Smith lays great stress on our enormous opportunities and our vast experience, but it is to be remembered that what we gain on the one hand we lose on the other. How many of his cases of vitreous escape has Major Smith followed up for a period of five years? With the best wish to do so, I find it very hard to follow any large percentage of my Indian patients, but I have been struck with the number of blind eyes I see from old operations, in which the characteristic upward displacement of the pupil indicates that the hyaloid membrane was ruptured at the time of the operation. These observations have confirmed me in a profound respect for the dread in which European surgeons hold a vitreous escape. If Major Smith can tell us that he has kept a number of cases of vitreous escape under ophthalmoscopic observation for months or years, and that he had not observed the formation of bands in the vitreous, detachment of the retina or other evil consequences, his evidence will be epoch-making.

Major Smith says "I do not draw a distinction between irritation of the iris and *iritis*, I call them both *iritis*," and again "The *iritis* following cataract extractions is, in my opinion, *due to the fact that lens-matter and capsule have been left behind*." He endorses Macnamara's opinion that "most of our failures in extraction are due to the fact of soft lenticular matter and capsule being left in the eye after removal of the lens."

With the above views I find myself at variance. I make a very great distinction between "*iritis*," which I believe to be practically invariably septic in origin, and irritation of the iris. In the former case one finds the characteristic signs and symptoms of inflammation of the iris, either in a mild or in a more or less severe form. On the other hand one has only to refer to one's notebooks to find cases in which it is recorded that the iris shows signs of adhesions between it and the deeper-lying structures, whilst there is no pain, no photophobia, no circum-corneal injection, no dimming of the iris details, and whilst the patient has excellent vision. In fact every sign of *iritis* is absent and what we have to do with is a plastic exudation from the lower surface of the iris.

* Ref. Archives d'ophtalmologie Tome vingt-troisième, pp. 103 et seq.
The Pathology of the Eye, Vol II, p. 423, J. Herbert Parsons.

brought about by contact between that membrane and either a raw edge of capsule or a fragment of cortex which apparently by virtue of its consistency cannot be readily absorbed. One operates on not a few cases in which it is not possible to wash the chamber clear of all cortex, although one is able to greatly diminish the amount left behind.

In such cases I frequently demonstrate to my students that if the cortex left swells up readily by the imbibition of fluid and assumes a gelatinous appearance, one need have no fear of iritic adhesions. Nor need one fear if the rent in the capsule and the exposed cortex lie within the circle of the dilated pupil. It is when the freshly-torn capsule edges, or when masses of stiff cortex, lie in contact with the membrane that one has to push the effect of one's mydriatic. At the present time in my hospital I have a case in which a sector of cortex $\frac{1}{4}$ the lens in area was left owing to the restlessness of the patient contra-indicating farther irrigation, and yet the iris lying over it has contracted no adhesions whatever, owing to the capsule rent lying within the circle of the pupil.

Again, I am prepared to demonstrate almost any day in hospital that cortex may be left behind, may set up local adhesions, and yet may in no way interfere with the steady progress of the case, if mydriatics are used. In Macnamara's time less was known than now of asepsis, and failures were attributed to other causes which should have been set down to septic infection of the eye. When serious inflammation occurs in an eye after operation, one may safely assume either that there has been an infection, or that some fragment of capsule has been caught in the section, provided always that the patient was in good health before operation. There is another point to bear in mind. It is always possible that a mild infection of an eye may take place during operation, and that the eye so infected may be able easily to cope with the pathogenic organisms engrafted on it, so long as no extraneous strain is imposed on its powers of repair. But if a mass of cortex happens to be left in the eye, and especially if that cortex is stiff and unyielding, an additional burden is imposed on the absorptive powers of the eye. Again, it is readily conceivable that a similar strain may be imposed on the eye by the drag of an impacted portion of iris or capsule or by excessive bruising of the iris by a hard, bulky line during delivery. Such complications may suffice to turn the scale against an organ, which under happier conditions might easily have worked out its own salvation. If this is what Major Smith means, there will be no difficulty in agreeing with him, but it is quite a different position to take up from that which assumes that the iritis "is due to the fact that lens-matter and capsule have been left behind." Such a statement throws the whole responsibility on the leaving behind of cortical matter and capsule.

It is possible that I have misunderstood Major Smith, and that we are more in accord than his words have led me to think. To come now to the evidence to be derived from some recent figures derived from my hospital cases. In the last 200 cases of cataract extraction performed in the G O Hospital, Madras, cortex is noted as having been left behind in 63 cases, *i.e.*, in 31.5 per cent. I admit that the quantity was usually very small, but sometimes the amount was considerable. In these 63 cases only three showed signs of iritis, *i.e.*, 1.5 per cent of the total number under review. Again, in 810 cases operated on in the hospital during 1905, I find that cortex was left behind in 188, or in 23.2 per cent, whilst in only nine of these was there iritis discovered, *i.e.*, in 1.1 per cent of the total number.

We may consider the 200 cases from another point of view, and divide them into two classes—those in which cortex was left, and those in which it was not so left. In the whole 200 cases there were five cases of iritis, *viz.*, three in the first group and two in the second. In none was the iritis severe. Taking the percentages of iritis in each group separately on the group-numbers, they stand at 4.3 per cent and 1.5 per cent nearly.

I think that these figures support my contention that, when the chamber is irrigated, left-cortex does not necessarily or even very frequently give rise to iritis. We have obviously to look farther for the true cause of this complication. On the other hand the explanation I have already offered is consistent with all the facts stated.

I most cordially agree with Major Smith that to leave more cortex in the eye than one can help, is a great mistake, and to that end I use irrigation and push it to very considerable lengths. Furthermore, I invariably remove any floating pieces of capsule I can see with a pair of iris forceps after the chamber has been washed clear. In the last 200 cases I find I removed fragments of capsule 30 times with a slight escape of vitreous in five. In the remaining 170 cases there were five other slight escapes. In no case was more than one or two drops lost. Though this manoeuvre has thus doubled my vitreous loss, it is to be taken into account that it is a much less dangerous proceeding than the expression of a lens in its capsule, inasmuch as it is quite easy to limit the vitreous escape by at once closing the eye as soon as danger threatens. The lens being out, this is of course possible. Whether even this additional risk is worth one's while running, is a matter I am very seriously considering. Again, Major Smith says "By extraction in the capsule we practically eliminate iritis and after cataract. An eye in which there has been iritis after cataract extraction, *never* recovers to be as good as if it had not occurred." To take the last statement first. I have notes of a case in which I operated in 1896. The patient was a wealthy man of high caste. He

removed all bandages and rubbed his eye the day after operation, with the result that he suffered from a very acute iritis. Under active treatment this subsided leaving the patient with practically full normal vision. I saw him again in 1905, and his eye had never given him any trouble in the interval. I could quote other cases, but none which I have been able to watch for so long a period. I do not mean for a moment to deny that iritis after extraction is a great misfortune, but I take exception to the sweeping nature of Major Smith's statement. With the question of the influence of left-cortex on the incidence of iritis, I have already dealt.

As to after-cataract, I admit that it is an evil, but it is not, to my mind at least, as serious an evil as Major Smith contends. In the last 200 cases operated on in my hospital (of which statistics are available), I find that I have resorted to a second operation (dissection with two needles) on four occasions so far. Doubtless, more will come back later on for the same operation. Again, whilst in 1905 I extracted 810 cataracts in hospital, the number of dissections for the same period stands at 75. In not one of these cases was there any bad result. I wait a month after extraction, and then take the same precautions for asepsis, etc., as if I were performing an extraction. The eye is kept bandaged for two days, and under the influence of atropine for ten days.

It is true that if we were dealing with a more intelligent class of patients, our percentage of after-cataract operations would probably shew a decided increase on our present figures, but I repeat, and I say it after a large experience of the two-needle method, that I do not fear capsule-laceration operations carried out under the conditions I have indicated above. I am alluding to the after-cataracts due to left capsule, and not to those due to inflammatory reaction. The treatment of the latter opens up quite another question, into which we need not enter here.

I, therefore, disagree with Major Smith's opinion that "to deal with an after-cataract is as serious as to extract a cataract in its capsule, if not more so." He goes on to say "*The eye in which capsule has been left, whether iritis has occurred or not, and whether the capsule has been needled or not, is liable to inflammatory reaction of a serious nature on slight provocation*" the capsule is injured and it behaves on slight causes as a foreign body. When the lens has been extracted in its capsule, the eye is no more subject to this liability to internal inflammation than is a normal eye.

I have been able to follow for many years a considerable number of my cases in which the lens has been extracted in capsule. I admit that the cases so followed have been only a percentage of the whole number operated on. It must, nevertheless, count for something that in uncomplicated cases I have seen no tendency to

the inflammations of which Major Smith writes. It is true that in a few cases, especially where the chamber has not been cleared of cortex, a capsule becomes more opaque than it was at first, and requires dissection with two needles, but this is a minor matter, and one which gives me no anxiety. Will Major Smith give us statistics of the cases in which he has noted these "internal inflammations" of the eye following the extraction of the lens by the capsule-laceration method? It would be interesting to learn whether in these cases there was any question of the capsule having been caught in the section, or of the iris having been impacted therein. Also, was there any inflammation of the eye at the time of convalescence from the operation? I have not infrequently seen eyes operated on for cataract go wrong within the next two or three years, but there has always been evidence of an imperfect operation, vitreous escape, impacted capsule and iris, or post-operative iritis.

It has long been recognised that the inclusion of fragments of capsule in the margins of the wound is a prolific source of deep-seated inflammations during the after-course of a cataract operation. If the whole capsule is removed, it is obvious that this danger is eliminated. Whether a new risk, in the shape of impacted vitreous is placed in its stead, must be a matter of experience.

If Major Smith will reconsider his position, and state a claim that by the intra-capsular method he removes (1) the dangers of IMPACTED capsule, and (2) the burden thrown on an eye already trembling in the balance by the strain of absorbing left cortex, it will then be possible to agree with him. The main question will still remain, whether what he gains on the one hand he does not lose on the other. To this I shall revert later. That the dangers of iritis are not great when the old method is carefully performed with the aid of irrigation, I have already shown, inasmuch as 200 cases only yielded me 2.5 per cent of this complication. Of these five cases two obtained good vision and only three can be counted as partial successes.

Again, Major Smith says "By extraction in the capsule, no instrument or douche need be inserted to remove lens-matter from the interior of the eye, *the cause of the striped keratitis* we hear of and other complications."

Since I have resorted to irrigation—and I employ it with no sparing hand—one of the most satisfactory features of the after-course has been the large number of clear black eyes obtained. Such eyes look as if the lens had been extracted capsule and all, and the cornea is as clear as it is in health in a very large percentage of cases. In 750 cases published by me in the *Lancet* { Nov 8th, 1902 } in which irrigation had been employed, keratitis, mostly *very slight* in degree, was recorded in less than 12 per cent. Again, in the last 200 cases operated on by me

by the same method, the figure for keratitis stands at 14 per cent

These results, which are better than I ever obtained before I took to irrigation, will, I think, refute Major Smith's statement as to the douche being "the cause of striped keratitis"

Again, Major Smith says "By extraction in the capsule, vision is *necessarily* more acute than when capsule is left behind. Capsule left behind is *invariably* an after-cataract *varying only in degree of density*"

Again I challenge these statements. If the capsule is freely lacerated centrally at the operation for extraction, the margins of the anterior layer recede and leave a clear central pupil in a large percentage of cases. Moreover, as I have already said, it is possible, with a little practice, and granted a fair amount of manipulative skill, to remove any floating portions of capsule from the pupillary area.

The posterior layer of the capsule comparatively seldom gives trouble. If it does so, it can be easily needed.

In my last 200 cases vision was tested on the 9th to the 14th days. In 33 cases or in 16.5 per cent, it was possible to re-test vision at a later date. This date varied from the 19th to the 60th day; the average was 33 days. The final visual results as shown by E types, and by types for the illiterate, were as follows: in 3 per cent 6/6, in 3 per cent 6/8, in 16 per cent 6/12, in 21.5 per cent 6/18, in 24.5 per cent 6/24, in 14.5 per cent 6/36, in 6.5 per cent 6/60, in 8 per cent from 4/50 to 1/50, 1.5 per cent could do no more than count fingers, and in 1.5 per cent vision was lost. Of the re-examined cases 10 remained stationary, 2 receded in vision owing to accidents, and 21 showed a steady improvement. Had it been possible to re-test a larger percentage, it can hardly be doubted that the results would have been greatly improved, but it is very hard to follow any large number of one's Indian cases. Arguing from my private cases, I should say that it takes usually six weeks to three months before the best vision is attained. As it was at this early date 89 per cent had obtained a vision from $\frac{1}{16}$ to $\frac{1}{16}$, 8 per cent from $\frac{1}{16}$ to $\frac{1}{16}$, 1.5 per cent could count fingers and 1.5 per cent were failures.

Five cases out of 200 obtained 6/6 vision by the 17th day and one on the 40th day. It is noteworthy that in not one of these cases was the whole capsule extracted, and in only one of them was even a fragment extracted. These figures are in direct contradiction to Major Smith's statement that "by extraction in the capsule, vision is *necessarily* more acute than when capsule is left behind," for it is difficult to expect a better result than 6/6. If Major Smith means that "on the average vision is likely to be more acute," that is quite another position, but it must be supported by carefully drawn up statistics, which will admit of comparison with those of other workers who employ the capsule-lacera-

tion method. The last half of the same para is also open to criticism. I do not admit that "capsule left behind is *invariably* an after-cataract, *varying only in degree of density*." For any one who has examined many such cases after operation with the ophthalmoscope, or better still with an electric loupe, is familiar with the fact that one can classify the eyes into three categories: (1) those in which no definite capsule can be seen in the area of the pupil even under very careful examination, (2) those in which a definite capsule can be seen but with a clear central or para-central aperture, and (3) those in which a definite membrane can be seen right across the pupil.

Why should we assume that the capsule of a cataract is *necessarily* itself opaque? So far as regards the anterior portion I admit it often is, but as I have already pointed out free laceration obviates this disadvantage in many cases. As to the posterior capsule, any one who uses the capsule laceration method knows that after extraction it is often invisible, even when very carefully looked for.

Major Smith claims to have obtained 99.27 per cent of first-class results. Will he tell us what he means by first-class results? Jessop in his text-book, p. 237, reflecting London opinion, says "An operation is said to be a success, when with glasses the vision is at least 6/36, a partial success when the vision is less than 6/60, and at least large objects, and a failure, if there is only perception of light." Major Smith has assumed that the profession is opposed to him and his methods. In this he is mistaken. We have in our hands a method of operating (when irrigation is used), which enables us to obtain admittedly excellent results. Major Smith asks us to give that method up in favour of extraction in the capsule. There are two things that make us hesitate: (1) that we have reason to believe that the dangers of vitreous escape are greater than we care to face, and (2) that the statistics put before us are not sufficiently exhaustive to command our conversion to the new method.

To sum up —

I have in this paper criticised a certain number of Major Smith's statements in the article under consideration, not necessarily because I disagree with his main proposition, but because I consider that these statements, which he has brought forward in support of his case, are, if unanswered, liable to be taken for accurate exposition of the facts. Such an assumption may create a false impression, and lead the younger generation of Indian cataract-operators to think that there is but one side to the question.

As to Major Smith's main proposition—till more evidence is forthcoming in his support, few will hope to attain a 6.8 per cent of vitreous loss, while using the intra-capsular-extraction method. The experience of others all goes to shew that the usual loss-rate is *much* higher than this.

Faithful, till the cases of vitreous escape are followed up in some numbers, and for some considerable time after operation by ophthalmoscopic observation, and till it is thereby proved that the widely entertained fear of this complication is groundless, most surgeons will hesitate to believe that the risks are as small as Major Smith considers them. Many years ago, I had the opportunity of watching a surgeon, who even then counted his extractions by the thousand, make a trial of the method Major Smith advocates. He told me that he could not keep down his vitreous loss, and that he therefore felt bound to give up the method, and yet he was an operator, who so far as manual skill was concerned, I have never seen beaten anywhere in the world, and I speak after seeing many of the Masters of Europe at work.

In closing, I would ask the younger surgeons to keep an open mind, and to watch the leadings of carefully drawn up statistics. By using the capsule laceration method, combined with irrigation, they have a method of extraction in their hands, which will give satisfaction alike to themselves and to their patients. Let them think twice before they surrender it for another mode, whose dangers are feared by many surgeons, both in Europe and in India. Let them remember that the hyaloid membrane (I am clinically convinced that such a membrane exists) is very thin, and that if we rupture it, even without vitreous escape, we *ipso facto* surrender the integrity of the diaphragm of the eye, which diaphragm is alike a guard against the inroad of infection, and a safeguard to the anatomical equilibrium of the organ. If carefully compiled statistics of the after-course of cases proves that we have erred in our conservatism, it will be time to change our operation, but not before.

BERI-BERI IN SYLHET JAIL

BY E A W HALL,

MAJOR, I M S,

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VERY little on the subject of beri-beri has appeared in the columns of this journal for some time, so the experience gained by me in the course of a small epidemic in Sylhet Jail may prove of interest.

Towards the end of September 1905, numerous cases of oedema of the feet were noticed amongst convicts working in the weaving and mat-making sheds. At first the cases were of a mild type, a few days' rest in bed and milk diet made the oedema disappear, and the cause and nature of the epidemic were not recognised till paralysis of the legs occurred in one of the cases, when a definite diagnosis of beri-beri was made. At the same time the disease began to assume a virulent type, and severe and fatal cases of heart-failure occurring, the sick were immediately removed to a camp about $2\frac{1}{2}$ miles from the jail, to

which the remaining jail population was moved as soon as accommodation could be provided for them. This measure stopped the epidemic, all but the hopelessly bad cases improved, the few fresh cases that occurred having received the infection while in the jail.

The papers read on this disease in the sections of pathology and tropical medicine at the British Medical Association meeting in 1905 and reported in the numbers of the *British Medical Journal* for October 25th and November 11th and which reached me most opportunely at the height of the epidemic, proved most interesting and enabled me to observe the disease with the newest light on it.

In this epidemic there were 158 cases and 21 deaths, giving a mortality of 13.3 per cent. All the cases began with faucial redness and tenderness, a feeling of malaise, symptoms of dyspepsia and a hard and firm oedema of the feet and legs, together with pain, tingling and weakness in the legs. The more advanced cases showed oedema of the whole body, especially of the neck and chest, in some cases the neck being swollen to such an extent, that the circumference equalled that of the head. They also had heart symptoms of varying intensity and degree, the worst cases died of paresis of the heart in two to three days.

As regards the frequency of the main symptoms, 94 cases out of 158 exhibited general anasarca, while in 64 the oedema was confined to the lower extremities, especially to the feet and pretibial regions. Cardiac symptoms were seen in 149 cases, of these, 118 suffered from palpitation and breathlessness, and 31 had in addition bruits of varying character and intensity, the regular spacing of the intervals on auscultation, as described by Manson, being very common. Knee-jerk was markedly diminished or absent in 104 cases out of 158, pain was complained of, on pressure, over the muscles of calves and arms in 111 cases. Loss of sensation in the skin of the pretibial region was elicited in 83 cases, and tingling of the skin of the arms and legs was very common. Every man affected complained of loss of appetite, faucial tenderness, a feeling of pain and burning in the epigastrium, and a tight or board-like feeling across the chest, but in 33 cases the gastric disturbance was acute, and in 13 of these cases vomiting occurred. This always proved to be a very grave symptom, of these 13 cases ten died, two were released from jail convalescent, and one is still lingering.

My experience confirms all the clinical points brought out by Dr. Hamilton Wright in his most valuable paper, and also that the old classification of the disease into dry, wet and mixed beri-beri is incorrect. He divides his cases into acute pernicious, acute, and subacute, and maintains that in every case there is an infection producing oedema, gastric symptoms, nervous symptoms, and heart affection, varying in degree, that in the severe cases death takes place early of paresis of the heart; that cases which do not

succumb from cardiac failure in the acute stage proceed along one of two lines, firstly, those that go on to full recovery, and secondly, those in which, after the subsidence of the gastro-duodenal irritation and cardiac affection, there is a stage of quiescence, and then further symptoms appear, and these cases he calls beri-beric residual paralysis. The paralysis may be cardiac, sensory, motor, sensory-motor or vaso-motor, and it is amongst cases of this second group that the types of the old classification are seen. The atrophy and wasting of muscles giving the dry variety, those with oedema the wet variety, and the mixed cases the mixed variety.

In the present epidemic we have had these types of the older writers perfectly exemplified, but they have all occurred in a late stage of the disease, in the early stage they all had cedema, gastro duodenal symptoms, etc.

On the 21 deaths, 17 were of the acute pernicious type and died of paralysis of the heart in two to three days from the onset, while four went on to the residual paralysis stage and died, one of gangrene of the lung, two of vaso-motor paralysis and one of enteritis.

Post-mortem—All the cases have shown more or less fluid in the pleural, pericardial and peritoneal cavities. In all the cases there have been signs of great venous congestion, stagnation of the circulation and great fluidity of the blood. The heart has been enormously enlarged, especially the right side, both sides being filled with clot, partly white and organised and partly very dark red.

The duodenitis described by Dr. Hamilton Wright has been seen typically pronounced, in some cases the inflammation has also spread to the pyloric end of the stomach and also to the jejunum.

The head of the pancreas was found red and inflamed in a few cases, and in one a wedge-shaped gangrenous infarct was found in the head of the pancreas.

Causation—The rainfall in 1905 was heavier than in any year since 1899. The average rainfall for Sylhet is 156.64 inches, while in 1905 it was 182.55, which exceeds even the exceptional rainfall of 1899 which was 179.78. The seasonal rainfall, that is to say, from 1st May to 31st October in these two years is almost the same 159.85 in 1905 against 159.37 in 1899. It is noteworthy that in 1899 the jail mortality was high, being 33 out of an average population of 524.24. The total number of deaths in 1905 was 32 out of a population of 584.25, and of these deaths 21 were due to beri-beri. The jail site is low and badly drained, after a rainfall of half an inch or upwards the jail enclosure is flooded, and it takes hours for the water to flow off, this kept the interior of the jail in a perfectly wet and sodden state. From the 5th to the 15th October inclusive there was no rain, and the heat was excessive, it was immediately after this that the cases began to be numerous. The only other local

point of importance is that in 1905 indoor work was considerably increased as against outdoor work, all the jail industries were augmented, and as the buildings could not be enlarged to a corresponding extent, all the workshops were overcrowded. For example in the weaving shed, which had in 1904 accommodated six looms, in 1905 thirty looms were erected, the warps being rolled up on rollers to economise space instead of being stretched across the floor.

In a paper read by Dr. Clark at the Leicester meeting, he gives as the theories, at present upheld, of the cause of beri-beri the following—

- I The "arsenical" theory of Ross
- II The "rice" theory
- III The "place" theory
- IV The "acute or sub-acute pernicious disease" of Hamilton Wright, and to this he adds a "bed-bug" theory

1 I can show no arguments in favour of the "arsenical" theory.

2 The "rice" theory has been revived lately, and very strongly, by Mr. Hose of Sarawak. He maintains that the disease is due to eating rice, which has been long husked, and has become mouldy. This theory is not applicable here, as the rice issued in Sylhet Jail is freshly husked, and never more than two days' old. The rice husked one day being used the next. It is only on Mondays that two days' old rice is issued. The paddy, also, is not imported but grown in the district and is therefore fresh paddy. Moreover rice from this paddy was issued to all healthy prisoners in camp, and yet the epidemic died out, so that this theory may be disregarded, at least as regards the epidemic under consideration. However to this I must add that when the epidemic broke out, there were present in the jail 32 convicts belonging to Provinces which entitle them under Jail Rules to get "attah." These men received "attah" (wheat) at one meal and rice at the other, none of them contracted the disease.

3 The arguments in favour of the "place" theory are—first, that the epidemic affected certain groups of the inhabitants of the jail, working in definite places, and did not affect the other groups to whom the same food and water were supplied. The inhabitants of the jail may be divided into three groups,—(1) Females, (2) male under-trials, (3) male convicts. Of these, the females were quite free, while of the male under-trials two contracted the disease, these were a man who had had dysentery and was in the hospital and so not with the other under-trials, and the convict overseer in charge of the under-trials, who had also been in hospital, a place which in my opinion is infected. With the exception of these two, the remainder belonged to the third group of male convicts.

Secondly, that when the prisoners were removed to camp, the disease stopped, although they continued to get the same food and water as they had in the jail.

4 Dr Hamilton Wright's theory is given in the *British Medical Journal* for October 28th. He says that *berri-berri* is due to a specific organism, not yet isolated, that this specific organism is not one whose special habitat is a particular food, such as rice or fish, but one that may nevertheless be ingested with any food or drink accidentally contaminated, etc., etc. This is somewhat indefinite and gives no indication of the method by which the disease is actually contracted. With the rest of his working theory, I thoroughly agree.

Lastly, the theory of propagation by bed-bugs has been discussed, in this connection I may say that the sleeping wards and clothing in the jail are infested with bugs and lice. These are to a certain extent kept down by washing the floors, walls and beds in the wards, and by boiling the clothing and blankets, but with wooden beds and bamboo and mat walls, it is impossible to eradicate these pests.

In view of the recent discoveries of the propagation of tropical diseases by suctorial insects, this may prove to be the real method of dissemination. The arguments against it in the present epidemic are —

First—That the same bedding was issued indiscriminately to the three groups and so they were all equally liable to be bitten by the vermin infesting the blankets, and

Secondly, that when moved to camp the same bedding was used, and for the sick the same wooden beds, and yet the epidemic ceased. To sum up, I consider the place theory the most important, the difficulty is to connect up this theory with the gastro-duodenal irritation, which points so strongly to infection by ingestion of some food or drink. For this I would suggest the following theory, that the infection, presumably a bacillus, lies in the floor of the building, that it is inhaled by the mouth and nose, and convicts undergoing hard labour are bound to breathe with their mouths open, that the bacillus first lodges in the fauces, producing the faucial redness and tenderness which is so common a symptom in the disease, that from thence it is conveyed by saliva and food to the stomach and duodenum, and there, finding a suitable nidus, it proceeds to grow and flourish.

There is evidence to show that a few cases of cedema with palpitation etc., have occurred in former years in the jail, these cases were probably *berri-berri* though not reported as such, because cedema and palpitation are so common in many diseases in Assam. The infection has, therefore, been present in the jail, and during 1905 the excessive damp followed by exceptional heat and the overcrowding in the factories have all been factors to produce a multiplication of the bacillus, and so resulted in the epidemic.

The only other point of interest is the occurrence in five cases of head symptoms which I have not seen described previously.

The first of these was that of a Manipuri named Rasananda. He was admitted for *berri-berri* on the 29th October, he had general anasarca and palpitation. The knee-jerk was absent, he had loss of sensation of the skin of the legs and pain on pressure of the muscles of the calf. The disease ran a mild course, after a few days his anasarca and palpitation disappeared and he was apparently convalescent. On the morning of the 25th November he complained of severe headache and suddenly became unconscious, he passed his evacuations in bed and during the day he had several convulsive fits. During the 26th he remained unconscious and had fits. On the 27th he became delirious, was violent and raved, he was restless throughout the day and following night. On the 28th the symptoms remained the same, but during the night he slept, and on the morning of the 29th he woke conscious and sane. This case was typical of the five showing head symptoms. All had the initial infection stage, then a stage of quiescence and improvement, and in all suddenly appeared these head symptoms in the residual paralytic stage, due no doubt to degeneration proceeding up the trunks of the affected nerves to the brain centres. The state of unconsciousness or coma was seen in all five cases and was in all a deep comatose condition, and in four out of the five, there was irritation of the brain producing convulsive fits, three out of the five had in addition delirium and subsequently had delusions. The comatose stage lasted exactly four days in all the cases. Two of the cases died, one from general anasarca and paralysis of the heart, a typical wet *berri-berri* case, and one from gangrene of the lung, one was released from jail convalescent, one has gone on to complete recovery, and the fifth is still on the sick list, he had bedsores, still has delusions and is in appearance a typical dry *berri-berri* case.

One more noteworthy point was the extraordinary liability to infection of the Manipuris. Of 27 Manipuris in jail, seven contracted the disease and of these four died, these men were all exceptionally strong and healthy and of great muscular power.

THE SURGERY OF SARCOMATA

BY ARTHUR NEVE, F.R.C.S.,

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THE literature of cancer is very extensive as compared with that of sarcoma. Research committees and special laboratories in many lands are investigating carcinoma, and the ordinary newspaper frequently refers to the subject, while the very existence of sarcoma is ignored by the average layman. It may be said that the dread of cancer is of old standing, while it is only in the last half century that the meaning of the word cancer has been so restricted by the profession as to exclude sarcomata. But in any case sarcomata do not nowadays receive the attention

which the intense malignancy of many of the group should attract

There is something in the growth of many sarcomata that veiges upon the terrible, and impresses the imagination even more than in the cases of cancers properly so called. Here is a gay and active child only a few years old, it is casually noticed that there is something the matter with its sight, that one eye is pushed a little to one side, in a few weeks the eye is replaced by a fungating mass, surgical aid is called in, but when the orbit is cleared out, it is found that the roots of the growth already penetrate deeply into the skull, there is speedy recurrence, and soon symptoms of meningitis set in, or other evidence of systemic poisoning, and the young life flickers out. Or a lad who has always been healthy and athletic complains of pain in the thigh, and it is found that the whole thigh bone is enlarged, a diagnostic incision reveals an osteo-sarcoma of the femur, the only hope for cure being a prompt disarticulation at the hip-joint. As met with in this country, perhaps the most typical case would be that of a stalwart man in the prime of life who notices a lump growing in the neck, or on his back, by the time he appears at the hospital it is already the size of an orange, or perhaps is larger than a coconut, and so diffused as to be quite inoperable. Such cases are tragic.

In the Kashmir Mission Hospital on an average 21 sarcomata are removed every year, and I have the detailed and analysed records of 184 cases, almost all of which were operated on by Dr. E. J. Neve or myself. Of these, only 20 per cent were females. Statistics as to sex are in the East somewhat vitiated by the seclusion of women, but in Kashmir the women come readily for operation in ordinary surgical affections, so that the figures may be relied on as showing a larger incidence of such tumours in males. The age incidence is as follows, per cent—

Under	5	10	15	20	30	40	50	60	70
	6	7	10	7	18	20	21	8	3

Thus 30 per cent were under 20 years of age, and 89 per cent under 50 years of age, whereas in epithelioma, as met with in Kashmir, the mean age of the patients was 53 years. And it is worth noting that 36 per cent of epithelioma patients were females, as compared with 20 per cent in sarcoma. As regards the localities favoured by sarcoma, the following list shows how wide is the distribution—

Scalp 2, eye and orbit 1, ear 1, nose and pharynx 3, upper jaw and maxilla 13, lower jaw 7, other face 5, other cranial bones 3, neck and parotid 26, tongue and sub-maxillary 3, larynx 2. Total in head and neck 79.

Upper extremity—Clavicle 2, scapula 2, axilla 1, arm 5, forearm 7, hand 7. Total 24.

Trunk—Chest 3, mamma 1, shoulder 1, side 7, dorsal 3, lumbar 5, abdominal wall 12, pelvic bones 2, mesentery 2, kidney 2, liver 1, uterus 2, vagina 1, testicle 3. Total 45.

Lower extremity—Thigh and groin 16, leg 16, foot 4. Total 36.

As regards then structure, 1 was a lipo-sarcoma, 3 were cystic, 5 myxo-sarcomata, 7 lympho-sarcomata, 8 melanotic, 7 myeloid, 5 pure spindle-celled, 12 round-celled, and 13 mixed oval and spindle celled tumours. In a large number of cases no careful microscopic records were kept, had they been, I do not doubt that the proportion of round and mixed celled tumours would have been vastly greater, for we regard these as the ordinary sarcoma and hence specially examined and recorded all other kinds.

The malignancy of these tumours varies widely, in some there is a rapidity of growth, an energy of development, and a diffusive tendency which place them on a level with the worst forms of epithelioma. While there are others, perhaps very similar in microscopic characters which grow slowly, and are easily eradicated.

Under the term sarcoma are now included "all connective tissue tumours which exhibit malignancy" (Bland Sutton), so that there is this clinical aspect as well as the histological definition "Tumours formed of embryonic connective tissue elements, either pure or undergoing modification into organized tissue."

And in general terms it may be stated that the malignancy is in proportion to the lowness of its organization. Thus the small round-celled sarcoma with little or no intra-cellular substance is more malignant than the variety with larger more oval cells. It also tends to occur at an earlier period in life, sometimes in very young infants. The spindle-celled variety has far less tendency to dissemination in remote parts, and does not infiltrate so widely, but is notorious for its tendency to local recurrence. Different portions of one tumour may vary widely. Occasionally portions are found containing cartilage, or osseous tissue, or even muscle fibre. From this diversity in character, depending not only on the cellular structure, but on the position of the tumour in almost any part of the body, arises the fact that every large sarcoma presents an individual problem to the surgeon. It is not as in epithelioma of the breast with its definite relations to that organ, to the lymphatics in its neighbourhood, and the glands in the axilla, for all of which certain well-marked lines of procedure have to be followed, or like the "Kangri-burn" cancer so familiar to us in Kashmir, of which it is comparatively easy to estimate by its naked eye appearance the degree to which it has infiltrated the deeper parts, and what glands are likely to be affected.

In the case of sarcoma every case has to be taken on its own merits, and the diagnosis can seldom be fully made until the tumour is incised, or indeed as to its precise type, until after the close of the operation, and the eye is reinforced by the microscope. Doubtless there are many small lumps, histologically ranking with sarcomata, in which the question hardly arises as to

then malignancy, if the surgeon is at all careful in his operation. This is in my experience true not only of myelo-sarcomata, or chondro or fibro-sarcomata, but also of certain spindle-celled and even round-celled tumours which are usually reckoned very malignant. In short, clinical characters must always be taken into consideration. Bland Sutton declines to call myeloid tumours malignant, and it is true that they are usually fairly well defined, within the limits of a spurious periosteal capsule, but most of us have seen cases in which the sarcomatous tissue has burst its bonds and has widely infiltrated the surrounding structures. And in such any hope of eradicating the disease is feeble. I do not deny that most of them when small, show clinically little malignancy. And just in the same way that for a time a myeloid tumour is limited, we might say encapsulated, by osseous or periosteal structures, so are some even of the most dangerous types, the soft round-celled or melanotic tumours for a time limited by their anatomical relations, as for example when growing in the eye, before the globe has given way, unless the optic nerve be extensively infiltrated.

It does not do to confuse the possibility of complete removal with the question of malignancy, although the prognosis may largely depend upon it. In a strict sense the malignancy is estimated by the progress of the disease when left to itself. Thus the Kashmir epithelioma from "kangri" burn is absolutely malignant, with secondary glandular growths causing death by pressure, hæmorrhage, or sepsis, but if removed early, it is curable in 90 per cent owing to the accessible situations in which it is found. In the same way if a testicle with sarcoma be removed when small, before dissemination has taken place, the cure is absolute, but a less virulent type of sarcoma in the mediastum, or deep in the neck, proves fatal because it is in-eradicable. Thus in a case explored by Dr E F Neve in 1898 there was a hard painful mass, the size of a cricket ball, under the right sternomastoid, an incision below showed that the phrenic nerve was involved. The patient turned a bad colour and began to hiccough, and the wound had to be closed up, leaving the tumour intact. In this country where, owing to ignorance or remoteness, tumours are often of large size when first seen by the surgeon, one may perform exploratory operations to investigate the origin and attachments. In one case, there were prominent rounded masses in the epigastric region, somewhat movable. I found on incising that they were connected with the liver and were sarcomatous, so I proceeded no further.

The essential thing to be aimed at by the surgeon is the complete removal of the disease. Where the tumour is of small or medium size and not in relation with vital parts, this may be a simple task. Sometimes also there is a capsule which limits the disease definitely. In sarcoma

the tumour should never be shelled out from inside the capsule, indeed the capsule should be scrutinised with the keenest suspicion lest at some point it may have become infiltrated, or have given way, and more particularly if the growth be in the substance of a muscle there can be no assurance of safety unless the muscle be entirely extirpated, and at the least the excision should be carried far beyond the apparent limits of the tumour in the length of the muscle. In a limb it often becomes a most critical question whether amputation should be performed or not. In two cases we amputated the arm and in three the leg on account of the extent to which the bones were involved. In a large tumour of the tongue I made a clean sweep including the hyoid bone.

The parotid tumours were many of them as large as a mango or even as a coconut. Such require an incision from the temporal region to near the sternum, the facial nerve has to be sacrificed, and often the common carotid artery and perhaps also the internal jugular vein ligatured. The known recurrences in such cases were 5 in 26, but had they been followed up, doubtless others would have been found to suffer from secondary tumours elsewhere. But, on the whole, it appears that secondary growths are rare in Kashmir.

Many sarcomas are of very slow growth. 35 per cent were of less than one year's duration, 15 per cent less than 2 years, 30 per cent less than 3 years, and 10 per cent over 10 years. Sometimes the history shows rapid increase of size recently, after years of comparative quiescence. In some of the long standing growths there is much stroma, and it is not uncommon to find myxomatous or cystic degeneration. In our experience metastatic growths are most frequently met with in soft round-celled and melanotic tumours. Our statistics take no account of the rather large number of cases which, when first seen, were evidently inoperable. But in a considerable proportion of really inoperable cases an exploratory incision was made.

Exploration should aim at fulfilling two or three purposes. The relations of the tumour to other structures, the degrees of vascularity, the extent of infiltration, and the microscopic appearance of the cell elements can only thus be ascertained. It must be remembered that a scraping does not suffice for a complete diagnosis of the species, and during the progress of an operation there is not time for the making and examination of sections, but on many occasions I have been usefully guided by the rapid examination of a teased out fragment, showing whether we were dealing with embryonic cells or not. An exploration may sometimes show the impossibility of complete removal, but it may permit of the blood supply of the tumour being partially cut off or of the bulk of it being reduced. Are such partial measures of any real

relief to the patient? They need to be separately considered. Many years ago I published two or three cases of inoperable sarcoma improved or cured by the injection of methyl blue, and many cases have been recorded of cure after the use of Coley's fluid. What is the *modus operandi* of such cures, who can say? We do not know enough about the nature of tumours to explain many things in their clinical records. But I regard it as certain that the arrest of growth which sometimes takes place after the ligation of the main arterial supply to the part does not completely depend upon the lessened nourishment. In the case of large tumours of the head, we have not infrequently ligatured the common carotid. Four of these were parotid tumours, and the rest were in the naso-pharynx, or submaxillary regions. Twice the ext carotid was ligatured. In neither of these was the tumour encapsulated or completely eradicated, and yet the growth seems to have been permanently arrested. Here is a brief outline of them.

No 45 1902 Ablu. First operation in October 1901. Dr E F Neve then cleared out a mass of sarcoma from the naso-pharynx. Four months later it had recurred, and my brother then tied the ext carotid, and with spoon and finger thoroughly cleared out the cavity, as far as is known no growth recurred.

No 44 was a similar case, but also involved the upper jaw and pushed the eye forwards. The whole mass was turned out after securing the ext carotid. Ten days later there was some hæmorrhage, so the common carotid was ligatured. In May of the following year a slight recurrence had to be removed, and it was noted as to the final condition that there were some irregular granulations visible in the posterior nares, but no evidence of sarcoma. A very similar case was twice operated upon by Dr E F Neve with ligation of the common carotid and a stout whipcord ligature round a large mass of infiltrated tissue in the cheek.

Two years later I met him on the road and examined his condition. He was in good health, free from all pain and discomfort, and the unremoved portion of tumour had shrunk and almost disappeared. These and other cases show the advantage of operating where the vascular supply can be cut off, but a superficial operation merely dealing with the outer part of a large vascular infiltrating tumour is useless in most cases, although in others it may relieve by diminishing bulk or pressure on a vital part, or sometimes it may be called for where the skin has given way and there is a foul and bleeding fungating mass.

It is often exceedingly difficult to judge as to the possibility of complete eradication of large sarcomata of the muscles of the trunk. A man came with a mass in the left loin (No 90), it overlay the three lower ribs and extended down to the ilium. I excised it with the infiltrated muscles down to the perirenal fat and peritoneum, cleaning the ribs and crest of the ilium,

and covered in the whole raw surface with skin grafts. For a time it looked well, but after five weeks recurrence appeared, he refused to allow another operation at the time, and when seen a few months later it was quite inoperable.

Another case (No 99) was similar in appearance and situation, the size of a coconut. It was widely excised with portions of the internal and external oblique muscles and the point of the twelfth rib and the skin. It healed without any recurrence.

In two cases the whole scapula was excised, in one, a young woman, the sarcoma had not infiltrated the surrounding tissues widely and cure was complete, in the other I helped Dr Caster to remove the tumour which was widely infiltrated and replaced the muscles. All visible disease was removed, but six weeks later I had to excise the growth in the upper part of the arm, and a month after there was recurrence in the scar behind the shoulder, probably in the substance of the trapezius. Obviously, it would be impossible to eradicate every muscle connected with the scapula.

In one man (No 88) there was a tumour, the size of a fist, involving the inner third of the clavicle, which was removed. Venous hæmorrhage was considerable, but he did well.

Other large tumours involving in one case the subcapularis, in another the rhomboids, in another the trapezius, and in two or three others the muscles over the ribs were successfully eradicated.

In several of these the tumour appeared to have a definite capsule, although the main portion consisted of oval or spindle cells. Such a capsule detracts much from the malignancy. In other cases the growth has taken place toward the surface with but a narrow base and no deeply penetrating roots, in these also a permanent cure might be expected, however rapidly growing the tumours may have been and however embryonic their structure.

The results may be thus summed up: in 11 the operation was merely exploratory, in 12 others the excision was incomplete, in 16 there was recurrence, in 10 others it was doubtful when they left hospital whether extirpation was complete. Three cases died in hospital or soon after leaving, and the remaining 132 are regarded as probably cured, which gives about 70 per cent of success.

SEASON AND SOME DISEASES IN MADRAS

By J W CORNWALL, M.A., M.D. (CANTAB.),
D.P.H., D.T.M.

CAPTAIN, I.M.S.,

Deputy Sanitary Commissioner

As far as I am aware no charts have been published in official documents or elsewhere in India which display the seasonal incidence of diseases in such a fashion as to enable comparisons to be made of separate towns or districts.

SEASON AND SOME DISEASES IN MADRAS.

BY CAPTAIN J W CORNWALL, M A, M D (CANTAB), I M S,

Deputy Sanitary Commissioner

CHART I

Seasonal incidence of deaths from Small pox in Madras City during the 50 year period, 1855-1904

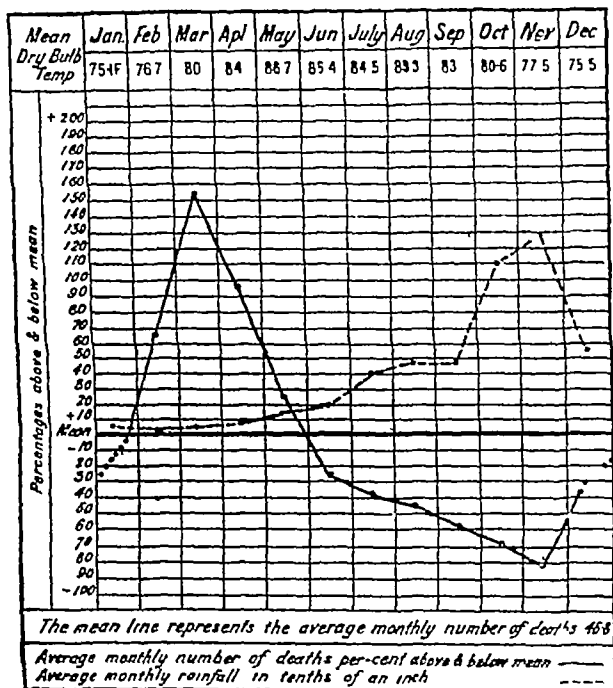


CHART II

Seasonal incidence of deaths from Cholera in Madras City during the 50 year period, 1855-1904

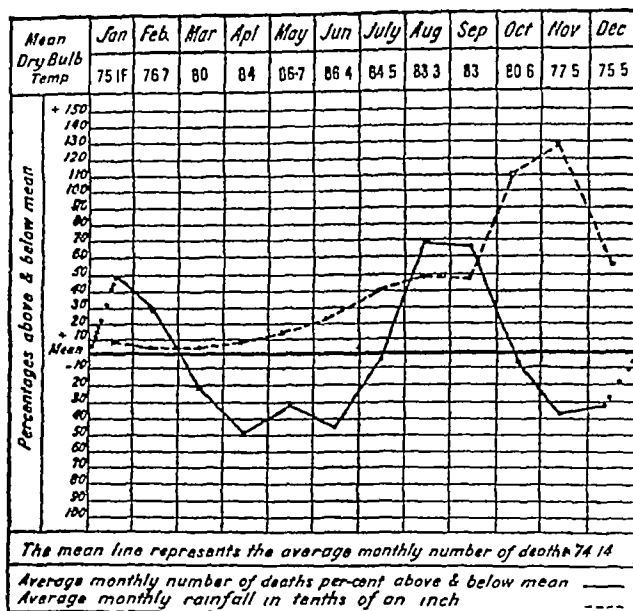


CHART III.

Seasonal incidence of deaths from Dysentery and Diarrhoea in Madras City during the 50-year period, 1855-1904

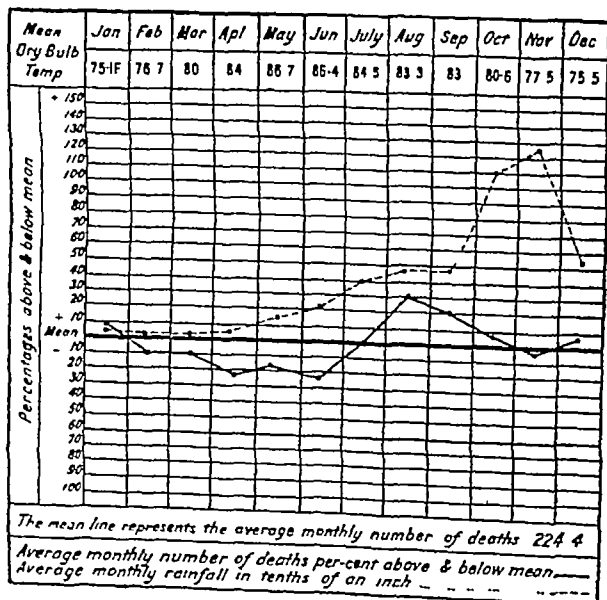
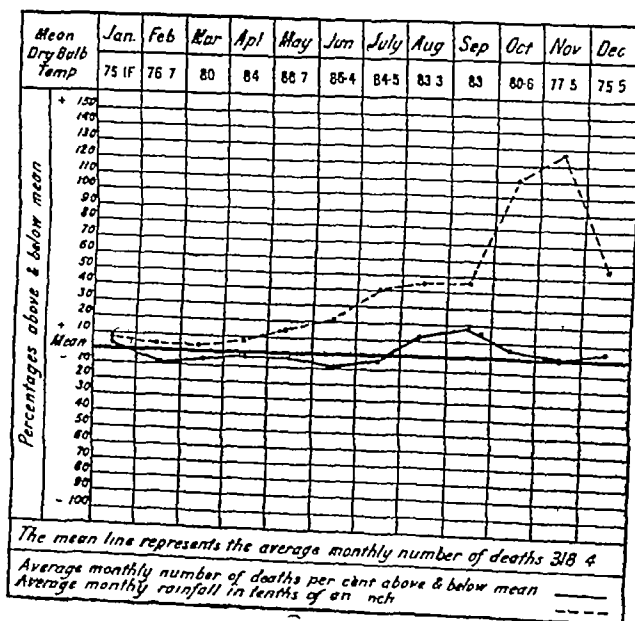


CHART IV

Seasonal incidence of deaths from Fevers in Madras City during the 50 year period, 1855-1904



Just as the mere statement of the number of deaths in a year in two towns provides no basis for comparison of their healthiness, so statements and charts of the seasonal incidence of diseases which are prepared with actual numbers give little real information.

To compare the health of towns the numbers of deaths occurring in the accepted unit of population are calculated. Similarly, to compare the seasonal incidence of diseases, it is convenient to illustrate the percentage of deaths a month

Chart No 2 sets forth the cholera mortality. It will be noticed that there are two maximum periods, one in January and February, and the other in August and September, and two corresponding minimum periods. It is not easy to trace any connection between the incidence of cholera and the rainfall. The January maximum occurs immediately after the cessation of the North-East monsoon when the ground is still soaked and the subsoil water level still high but falling —

Table showing the average height in feet above mean sea-level of the subsoil water in Madras City, calculated from observations taken in 13 wells in different parts of the city, during the period 1898-1901

Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec.
.66	61	52	53	50	45	41	37	39	48	70	69

above or below the mean number of deaths for the period, a method applied by Newsholme to some of the specific diseases of England.

Chart No 1 shows the variations of small-pox according to season during the 50-year period 1855-1904. The charts prepared for each of the five included 10-year periods bear a very close resemblance to each other and to the chart for the whole period.

Small-pox is a common disease well known to the majority of the people and characterized by appearances which even the most ignorant can scarcely fail to recognize. Hence it is reasonable to suppose that diagnosis has been more accurate in connection with small-pox than with any other disease, and that the registration figures made use of contain few errors due to inclusions of other diseases, though there are doubtless some omissions. It is quite impossible to obtain figures to illustrate the case incidence of small-pox with any degree of accuracy, one must be content with deaths alone. It may be concluded with some confidence that the small pox charts represent the true state of affairs, and that inferences drawn from them are to be relied upon.

Chart No 1 indicates that small-pox is most prevalent in Madras City during the first five months of the year and that the percentage of deaths is below the mean during the last seven months of the year. The maximum mortality occurs in March when the rainfall is least, the minimum mortality in November when the rainfall is highest. Is there any connection between the two beyond an accidental one? In England the association is not so marked. Newsholme's diagram, based on the deaths between 1841 and 1890, shows the mortality to be above the mean during the first six months and to be below the mean during the last six months of the year. The maximum and minimum are not nearly so distant from the mean nor so sharply defined as in Madras curve, nor on the other hand is the rainfall in England arranged like that in Madras, except that the first half of the year is the drier in both places.

The 10-year charts, however, only show the January maximum in 1855-1864, 1865-1874 and 1875-1884. In the decennia 1885-1894 and 1895-1904 the mortality from January to August did not rise above the mean and the average monthly number of deaths was lower than in the preceding three periods.

The decennia 1855-1864 and 1865-1874 on the other hand do not exhibit the enormous rise in August and September that is seen in the three following ones. The March to June or first minimum period coincides with the hottest and driest months and with a slowly falling subsoil water level.

The August and September or second maximum immediately follows the rains of the South-West monsoon. The soil is, however, at this time so dry and absorbent that the level of the subsoil water does not begin to be affected until September.

As soon as the really heavy rains of the North-East monsoon set in, in October the cholera mortality at once falls to its second minimum in November and December in spite of the fact that the subsoil water level rapidly rises to its maximum in November. It is as if the rains wash the soil clean, remove garbage and organic matter and temporarily reduce the number of flies.

The rise in January which occurred in the first three of the five decennia under discussion is difficult to account for, and the lapse of years renders it impracticable to get any information bearing on the point. Since the rise in January has not taken place during the last two, it is possible that the introduction of a comparatively pure pipe water-supply has had something to do with it. As regards the August rise, seasonal influences apart, during July there has frequently been a shortage of pipe water and the people about that time have probably made greater use of the numerous wells in the town than at other times of the year, and it is possible that infection has been spread in that way. No generalized epidemic has ever cast suspicion

on the pipe water as the medium of infection, but it may be that localised outbreaks have been due to infective matter finding its way into leaky branch pipes. Candidly speaking, though I had annual experience of cholera during the time I was Health Officer of Madras, I could never satisfy myself that water, whether derived from pipes or wells, was the medium of infection in any particular instance, but there was never any leisure for bacteriological investigations. Rather I am inclined to believe that soiled hands, dirty vessels and contaminated food play the principal part in the dissemination of the disease. In short, in the absence of further facts one can affirm nothing concerning the reasons for the observed seasonal incidence of cholera.

Though the diagnosis of cholera is not as simple as that of small-pox, yet I consider that the figures represent the actual facts pretty correctly. A certain proportion of deaths has doubtless been registered as cholera when death was really due to some other cause, but a larger proportion has in all probability been omitted altogether and has gone to swell the headings "Fevers" or "Other Diseases." Chart No. 3 shows the mortality from diseases registered as dysentery and diarrhoea between 1859 and 1904. Whether the lesser amplitude of the variations from the mean is due to the more even distribution of these affections throughout the year, or to defective diagnosis permitting the inclusion of numerous other morbid states, I have not the information to enable me to determine. It corresponds closely with the cholera curve, but appears to be less influenced by the onset of the North-East monsoon in October and does not have such a well-defined minimum in November. During cholera times a good many deaths from cholera are registered as dysentery or diarrhoea, so that while this curve bears out the general notions held, I do not consider it to be as reliable as those of small-pox and cholera.

Chart No. 4—I insert merely in order to emphasise how utterly useless figures are, which come under this very broad heading. It is practically identical with the curve of the general mortality of Madras. The time is surely arriving for the further differentiation of diseases amongst the civil population of India for the purposes of statistics, but until all practitioners on Western principles are registered and bound to notify infectious diseases in Municipal towns and to certify the causes of death in those of their patients who succumb, no progress can be made.

It would be interesting if anyone who has access to the figures would work out similar charts to these for some of the other great cities of India and publish them. A considerable amount of exact information is also to be derived from the books of large hospitals. Some of the current ideas as to the relationships between the level of the subsoil water, the rainfall, the temperature, the humidity, and malaria,

cholera, dysentery and small-pox might be more firmly established or finally disposed of, if the seasonal incidence of these diseases in different climates and under diverse conditions were more precisely known, and it could be seen whether the correspondences are accidental or constant.

In conclusion, I have to thank Captain T. S. Ross, I.M.S., the Health Officer of the Corporation, for kindly supplying me with the mass of figures required for making out the charts.

A Mirror of Hospital Practice.

TWO CASES OF OVARIOTOMY FOR TUMOURS OF UNUSUALLY LARGE SIZE

By E. F. GORDON TUCKER,

Capt., I.M.S.,

Civil Surgeon, Surat.

K. M., Hindoo female, aged 46, was admitted into the Cowasji Jehangir Civil Hospital, Surat, on November 14th, 1905, suffering from extreme distension of the abdomen. She stated that up to a year and-a-half before admission she had enjoyed very good health, but that at this period she noticed a swelling on the right side of the abdomen to which her attention was drawn by pains of a stabbing character. The usual native counter-irritants to the skin of the abdomen were applied, and the tumour progressively increased in size.

Lately, the abdominal distension had prevented her from taking food and the dragging pains had increased. For this reason she came to hospital, as well as on account of the fact that the extreme enlargement was producing pressure symptoms on the heart.

On examination she was much emaciated, and the pulse was small, weak and 120 per minute. The small size of the thorax contrasted with the large size of the abdomen, which, at the umbilicus, measured forty inches. The urine was acid, passed in normal quantity and had a specific gravity of 1014. The surface of the tumour was bossy, and could be felt to reach from the pubic region to the ensiform cartilage. The skin of the abdomen was very tense, and the presence of free fluid could be made out around the limits of the cyst.

The skin of the abdomen having been carefully asepticated, ovariotomy was performed on November 19th. On making the usual incision, about a pint and a half of ascitic fluid came away from the peritoneal cavity. The tumour being so enormous, the incision had to be enlarged from the pubes to the umbilicus before the hand and forearm could be introduced to ascertain the

presence of adhesions. The upper surface having been found free, the larger cyst was tapped. As there was no ovariotomy trocar available, a large hollow needle fitted with a long piece of rubber drainage tube was plunged in, and we had to wait patiently till the fluid came away sufficiently for us to be able to get a good purchase on the cyst walls and draw the tumour from the wound. A bucket was filled from the fluid of the large cyst, and then a second smaller cyst was tapped through the wall of the first, and the whole mass removed bodily through the wound. The second lot of fluid half filled the bucket. The tumour mass filled up the whole of the distended abdomen and the small intestines were compressed and flattened against the spine. The growth was a very heavy one, but unfortunately was not weighed. The pedicle concerned the left broad ligament which was ligatured with thick silk after clamping. The right ovary was healthy.

Except for some slight vomiting on the following day she recovered without a bad symptom. The wound healed by first intention, but seventeen days after the operation a stitch abscess formed about one of the deep silk sutures in the abdominal muscles. Later on, two others formed lower down, but when these had become loose they were removed and the wound then healed up. Twenty days after the operation a small painless abscess formed in the lower inner quadrant of the left breast, which was incised and healed up without trouble. The cause of the formation of this was not evident. The patient put on flesh rapidly and left the hospital well on January 28th.

Case II—The second case was much more difficult, and exemplifies the lengths to which natives will go before coming for surgical treatment.

D. O., a Hindoo female, aged 28, was admitted January 24th. She was in such an exhausted state that examination was difficult. Much fluid was evident in the peritoneal cavity, obviously under great tension. The upper abdominal cutaneous veins were distended and varicose. The feet and legs pitted deeply on pressure. The vaginal mucous membrane was pushed down to the vulva. The measurement of the abdomen at the level of the umbilicus was fifty-five inches. The base of the heart was pushed up. The heart sounds were weak, the pulse 110 per minute. She had had much difficulty in taking food, and the bowels were habitually constipated. The urine had a specific gravity of 1030 and deposited urates.

She had only noticed the swelling six months before admission. Menstruation ceased seven months before admission. She had had two children, who died young.

Laparotomy was performed on the following morning, a hypodermic injection of strychnine and digitalin having been given. The abdomen

was incised below the umbilicus, the patient lying on her right side, and the fluid allowed to flow through a small wound in the peritoneum. Owing to the tension it was under, it was ejected to a considerable distance and the stream caught in buckets. Three and-a-half large buckets were filled by the ascitic fluid, and the wound then enlarged. Examination by the hand discovered a very large ovarian tumour filling up the back of the whole abdominal cavity. A peritoneal adhesion on the right of the wound, containing a blood-vessel as large as the little finger, was clamped and divided. As the tumour was so fixed by adhesions the wound had to be prolonged up to the ensiform cartilage, when it was found that the whole of the great omentum was feeding the upper pole of the tumour in the shape of a broad network of blood-vessels on its anterior and posterior surfaces. These were gradually clamped, cut, and ligatured with silk, but as there were only two large clamps available, the process was very prolonged and tedious. There was considerable difficulty about the centre of the transverse colon which was in intimate contact with the tumour.

With the assistance of Dr. Rukmabhai and Dr. Dosabhai, the heavy mass was held forward a little, when it was possible to separate an inch and-a-half of peritoneal adhesions in connection with the descending colon. Finally, two and-a-half inches of adhesions intimately connected with the sigmoid flexure were separated from the lower and back part of the mass.

After the omental adhesions had been disposed of, a large trocar was thrust into what appeared to be a cyst within the tumour, but nothing ran out, owing as afterwards appeared, to the fact that the contents were too gelatinous to flow. Hence the tumour had to be removed entire.

Finally the pedicle, which concerned the left broad ligament, was clamped, cut, and ligatured. The weight of the tumour was twenty-eight pounds ten ounces, and was a colloid cystoma.

The free margin of the omentum being a long ragged mass, and one which would be extremely liable to snare a loop of small intestine, was finally taken up with thick ligatures and the excess removed. The umbilicus, owing to the application of counter-irritants, had formed a large button of cicatricial tissue double the diameter of a rupee. This was removed and the round ligament of the liver sutured in position when sewing up the wound. The abdominal integument to the right of the skin incision was heavy from the cedema into the cellular tissues. The peritoneum having been carefully sponged out and all bleeding points taken up, the wound was closed with deep silk ligatures for muscle and peritoneum, and catgut sutures for the skin. The whole operation, which took three hours and a half to complete, was well borne by the patient, considering her desperate condition. An enema of coffee was given before

removal from the table and a hypodermic injection of brandy

Owing to the care of my hospital assistants, who took it in turns to sit by the bed and watch her, the patient had rallied by the evening. Thirst was relieved by sucking ice, and cardiac stimulants were given by the skin and rectum

On the following day the patient was comfortable and cheerful and the pulse was good. There was no abdominal distension, and no pain except the usual pain in the back. Her satisfactory condition made us hope that she would recover. Unfortunately, this happy state of affairs did not last, as on the following day she complained of great pain in the abdomen, and the pulse was very weak. On examination the outline of the stomach was evident below the ensiform cartilage, the organ evidently having become distended with gas. There was also evidence of distension of the small bowel. Turpentine enemata and terebene by the mouth were followed by the passage of flatus and a certain amount of relief. Unfortunately, the distension recurred, and although there was ample room within the abdomen for intestinal enlargement, the condition of the stomach was too much for the over-taxed heart, and she died the same evening.

An examination of the abdominal cavity was made an hour and-a-half after death. There was a pint and-a-half of blood-tinged ascitic fluid within the abdominal cavity. There was a mass of blood clot at the left extremity of the divided omentum about the size of a walnut. The pedicle was in good condition. Apart from the clot, there had been no oozing from the many ligatures, and there was no evidence of peritonitis. The stomach was distended with air and collapsed on puncture. The small intestine was moderately distended with gas. Death had resulted from paralytic distension of the stomach and pressure on the heart.

A CASE OF OVARIOTOMY

By L. G. FISCHER, M.B.,

MAJOR, I.M.S.,

Civil Surgeon, Dehra Dun

A WOMAN, named Dharmo, aged 40 years, twice married, and the mother of seven children, all of whom died young, the last five years ago, was admitted into hospital on 16th January 1906. Her present trouble began shortly after the birth of her last child with a feeling of uneasiness, weight and pain in the right iliac region. This continued for two years, after which a swelling began to make its appearance. After this the swelling increased rapidly, and she began to lose weight, her menses however remaining regular, which they have done throughout. She has been tapped three times in the female hospital, in 1903, 1904 and 1905.

Her state on admission was as follows—The abdomen was symmetrically distended, the measurements were—

(a) Above the umbilicus	62"
(b) At the umbilicus	63"
(c) Below the umbilicus	65"

On vaginal examination the uterus was found drawn up, but freely moveable. She was emaciated and able to walk with difficulty, whilst her breathing was difficult. There was dulness on percussion, except in either flank, not altered by position. The functions of the kidney, liver and heart were normal, and there was no difficulty in arriving at the diagnosis of ovarian cystic tumour, probably unilocular. Accordingly, after a very careful preparation of the patient for three days previously, on the 1st February she was placed on the operating table, the bladder having been previously emptied by a catheter. The lower limbs and chest were wrapped in blankets. All instruments were sterilised.

Operation—An incision was made in the middle line, extending from the umbilicus to within an inch of the symphysis pubis. It was afterwards found necessary to enlarge this incision by some three inches. All hæmorrhage having been arrested, the peritoneum was opened, and was found extensively adherent to the wall. The adhesions in the neighbourhood of the incision were separated by the finger and the cyst was tapped by a large hydrocele trocar. The escape of the contents of the cyst into the abdominal cavity was avoided by fixing the edges of the opening by means of Wells' pressure forceps. The hand was now introduced between the cyst and the parietal peritoneum, and all adhesions were carefully separated. A large omental adhesion was tied and divided, and a considerable portion of omentum was removed. The growth, which proved to be a unilocular cyst, was then gradually extracted. The pedicle, which sprang from the right side, was then transfixed and tied by a double ligature, a single loop of stout silk being tied immediately round the stump, immediately beyond the first ligature. The pedicle was then divided, and after being carefully examined, was allowed to drop back into the pelvic cavity. The peritoneal cavity was now thoroughly flushed with a sterilised lotion containing 15 grains of boracic acid to the pint of sterilised water, and then systematically sponged out, especial care being directed to the iliac and lumbar regions. The abdominal incision and peritoneum were then stitched by means of a single row of twenty stitches, which were inserted so as to include the edges of the sheath of the rectus muscle as well as the peritoneum. No drainage tube was used. The wound was well dusted with iodoform and boracic acid, and a dry dressing of sal-alembroth gauze, cotton-wool and carbolic tow applied, and kept in position by an antiseptic binder.

The sac of the tumour weighed 2lb and the fluid, which was dark and thick, 30lb

No food was allowed on the day of the operation, until 4 P.M., when a small quantity of milk was given. On February 5th, there was a slight rise of temperature, and on the 6th the temperature rose to 103.6. On the 7th the dressings were changed, when a tumour was noticed in the hypogastric region, extending to the umbilicus which proved to be the distended urinary bladder, the attendant having omitted to pass the catheter. On withdrawing the urine the temperature almost at once fell to normal, where it remained. From this day onwards the catheter was passed twice daily. The sutures were removed on the 11th and from this date the patient passed urine freely, and continued to make an uninterrupted recovery, and was permitted to sit up on the 16th. The wound healed by first intention.

The special points to be noted are these — The rise of temperature on the fifth day was undoubtedly due to the fact that the patient's statement that she was passing water freely was believed and that the attendant failed to pass the catheter. The distended bladder caused tension in the wound, with pain and consequent rise of temperature. The catheter should be used steadily daily till there is no doubt that the patient possesses the power of voiding urine naturally. This I think is an important point which might be overlooked. The second point, to which I would draw attention, is the importance of thoroughly flushing the abdominal cavity, and sponging it out well down into Douglas' pouch, until the sponges are practically dry and unstained, and when there have been extensive adhesions, making quite certain, before closing the abdominal wound that all oozing has ceased.

I am indebted to my Assistant-Surgeon, Ranjit Singh, for notes on the case, as well as for valuable assistance at the operation.

CASE OF OVARIOTOMY

By SHEO BARAN SINGH, L.M. & S.,

Assistant Surgeon, Pilibhit

I SHALL be obliged if you will publish in your widely circulated paper the following remarks about an ovariectomy case ending in a remarkable recovery with a view to encourage the performance of such operations in other small hospitals like this (Pilibhit) —

History—Dauli, a Pahari (Nepal) Hindu female, aged 30 years, was admitted into the Pilibhit Dufferin Hospital on the 3rd of January 1906, with an enormously swollen and protruding abdomen. Pressure symptoms were markedly present. The general health of the patient was also much affected.

On examination it was found that the veins over the abdomen were prominent, umbilicus protruding and some marks of canterisation present. Had had two issues, the last child (male) being five years of age. The tumour showed its appearance about a year after the birth of this child as a small swelling about the size of a big orange in the left iliac region and gradually increased in size. Menses began to become irregular and stopped altogether three months before admission to the hospital. The tumour was hard, moveable, probably multilocular (from palpation) and appeared to have grown from one side, namely, the left. On percussion it was found quite dull and fluctuation could hardly be detected.

For a few days the patient was put on a stimulant mixture and the abdomen thoroughly cleaned and aseptic dressings applied.

Operation—On the 7th of January 1906 all possible aseptic precautions and measures having been taken, the patient was brought to the operating table and chloroform administered. Dr. N. R. Banerji, the Civil Surgeon, helped by his Assistant during the operation, made an incision of about four inches below the umbilicus along the middle line between it and the symphysis pubes, muscular layer carefully divided, peritoneum slit open and the cyst wall having been separated by means of fingers from the abdominal wall anteriorly was then tapped with a large Spencer Wells, trocar and cannula. A very small amount of thick, yellowish-white viscid, and gelatinous fluid, closely resembling the white of an egg came out, and that too, with difficulty. The cyst was then slit open, and on careful examination of its interior, it was found that there were innumerable daughter cysts varying in size inside the mother cyst and containing the same sort of cheesy material. The mother cyst occupied almost the whole of the abdomen and was found adherent with almost all the organs in the abdomen. The adhesions with the uterus below and the transverse colon above were rather firm and had to be divided with a pair of scissors under silk ligature. The tumour growing from the left ovary consisted mainly of fleshy part (about 10lb in weight with very little fluid (of the nature described above) inside. It was taken out rather with difficulty through the enlarged incision after a firm and carefully applied interlocking silk ligature to the pedicle.

Bleeding points having been ligatured, the external wound was closed with 18 worm gut sutures with a few horse-hair intervening and dressed aseptically. During the course of the operation (being under chloroform for more than two hours) the patient began to sink, and four hypodermic injections of ether and strychnine had to be given.

Progress of the case—After the operation the patient was given an inhalation of

ammon carb for 15 or 20 minutes every two hours

M T E T			Daily notes
7th Jan	96.6		Pulse very quick and small Tongue dry Much thirst
8th "	98.4	97.4	Pulse very quick, almost imperceptible Tongue extremely dry with papillae prominent. Thirst excessive Cannot pass urine herself No soaking of the dressing
9th "	99	100	Same as on 8th January 1906
10th "	99	98.2	Little better Pulse improving Tongue still dry Complains of thirst
11th "	100	101.6	Pulse quick and regular Feels better Slept well Tongue still dry
12th "	99	102	Pulse better Tongue becoming moist Thirst less Feels hungry
13th "	100.4	102	Patient better Pulse improving Tongue clearing up
14th "	99	101	Pulse better Bowels not moved Dressing changed, absolutely dry, no discharge Ten stitches removed Takes her nourishment fairly well
15th "	99	100	No trouble Patient improving
16th "	99	101	Doing well No complaint Can pass urine herself
17th "	98.4	101	Dressing changed, wound healed Remaining eight stitches removed Sticking plaster applied on both sides of the incision
18th "	98	101	Bowels moved Passes urine herself No trouble
19th "	98	100	No trouble
20th "	98	99.4	No trouble
21st "	98.4	100	Patient can sit in her bed easily
22nd "	98	98.4	No complaint Doing very well Wound completely healed Sticking plaster removed Abdomen supported by a bandage

Then after this date the temperature came down to normal and the patient began to move about Unfortunately she developed a bed-sore, which was timely detected and under ordinary treatment healed in three or four days As the patient was very weak from the beginning, she was kept in hospital for about ten days more and put on stimulant mixture and nourishing diet and then discharged as cured

TWO CASES OF PNEUMONIA WITH UNUSUAL COMPLICATIONS

By W. W. JEUDWINE, M.B., B.C.,

CAPTAIN, I.M.S.

THE first case is that of a sepoy, S. Singh, a fine Sikh, aged 23, who was admitted to hospital on the second day of his illness when returning from Rawal Pindi manœuvres

He was brought into hospital in the afternoon of 20th December in a state of collapse with a temperature 105°, pulse 135, feeble, low volume and tension, respiration 36 Very hurried examination showed signs of pneumonia on the right lung Patient recovered with the usual stimulating remedies, but on 24th December 1906 his pulse rate was 140, and very feeble in volume and tension, respiration 40, shallow, temperature 99.8, a high pulse rate and a falling temperature, a very bad prognostic sign, such cases usually ending fatally Examination showed that the heart was dilated towards the right Six leeches were applied over the cardiac and hepatic regions

On 25th his temperature fell to normal, the pulse rate was 130, the volume and tension slightly better, his respiration was 40, and patient was easier

On 26th patient became delirious and continued to be so with intervals of sanity for the next four days He was very violent at times and did not sleep at night A curious feature observed during this time was a strong, frequent, jerky movement of the right arm and leg, the leg was violently drawn up and the arm thrown upwards and outwards, as the patient was delirious and kept on endeavouring to get up no especial notice was taken of these movements

On 28th December 1905 patient had a second rise of temperature, and dulness in the left chest was observed, accompanied by moist sounds and bronchial breathing on the right side inspiratory recession was noticed

Nothing further was observed until 2nd January 1906, on morning visit total paralysis of the right arm and leg with absolute loss of knee jerk was observed and his sick attendant told me that his limbs had become powerless in the night Besides the motor lesion, sensation was absent all down the outer side of the thigh, and deferred in the right arm and other areas in the leg

Owing to the weak state of the patient no prolonged examination was made Patient was closely observed for any further signs of paralysis, and on 5th January 1906 paralysis of the external rectus muscle of the left eye was seen, and secondary deviation to the right present There was no paralysis or weakness or twitching of any muscle of the face on either side, nor was the speech at all affected

These conditions remained stationary for a few days and the lung trouble gradually cleared up without further complications The cardiac sounds were normal No murmur was even detected

Further particulars may be briefly recorded —
10th January 1906 — Patient complained of frontal headache, no drugs given to relieve it Bowels open

16th January 1906 — Slight movement of the toes and fingers — feeble and partial grip

18th January 1906 — Coarse movements in leg and arm, but very feeble, knee jerk again present, anaesthesia persists over the outer side of right thigh, but sensation elsewhere is normal

23rd January 1906 — External rectus of left eye is again working slightly

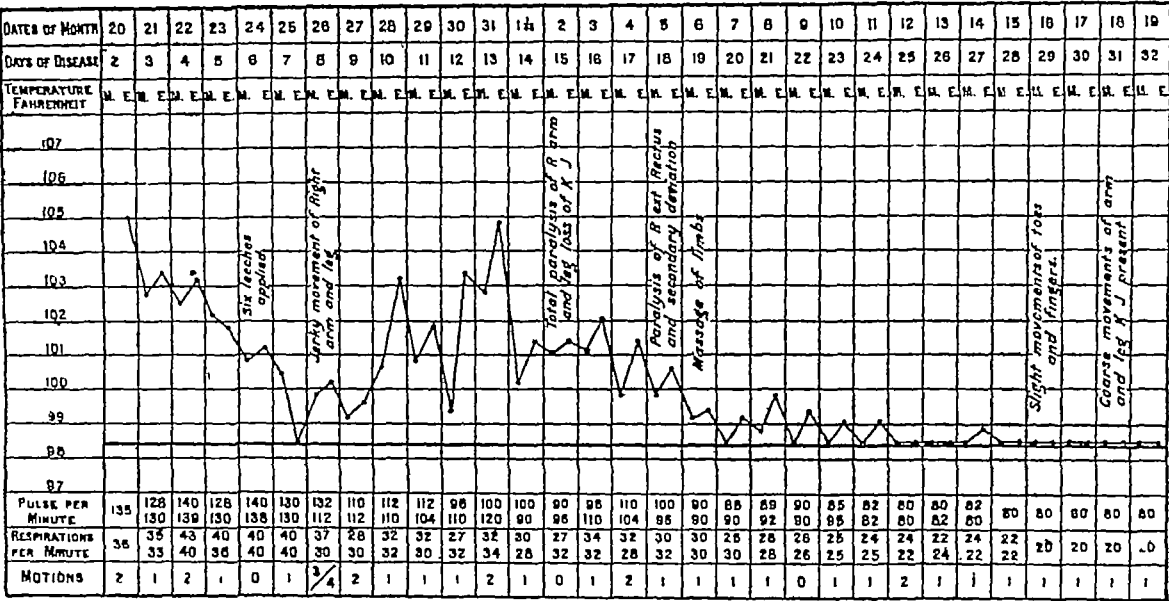
31st January 1906 — Patient is much stronger, eyes move inco-ordinately, but there is no actual paralysis of left external rectus, movements of arm and leg complete in all directions, but weak Hypothenar eminence flabby and movements of little finger weaker than the others

7th February 1906 — Still flabbiness of hypothenar eminence, patient was made to shut his eye, stretch out his right arm and slowly bring his hand to his mouth, while so doing coarse tremors in the arm and hand were observed

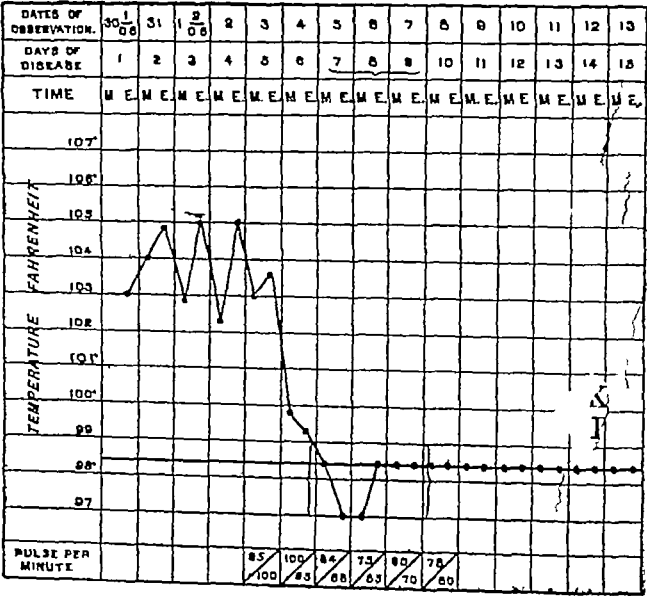
TWO CASES OF PNEUMONIA WITH UNUSUAL COMPLICATIONS

BY CAPTAIN W W JEUDWINE, M.B., B.C., I.M.S

CASE I.



CASE II



which did not perceptibly increase as the hand approached the mouth, eyes moved co-ordinately, patient can walk

10th February 1906—Still loss of sensation in the outer side of thigh

13th February 1906—Hypothenar eminence improved, only weakness in limbs

Loss of sensation still persists in outer side of thigh. Patient was discharged from hospital on 14th February 1906 to go on sick leave

The treatment carried out was the usual one, strychnine and digitalis were given early, with brandy, milk, etc

Massage was begun on 6th January 1906. The affected limbs were kept warm by hot bricks wrapped in flannel

Case No II—The second case is that in which a sepoy, aged 32, was attacked with pneumonia. The disease ran a typical course, crisis occurred on the sixth day

On the seventh day the temperature became sub-normal, again becoming normal on the eighth day

From the morning of the seventh day to the evening of the ninth day patient was violently delirious. He could not be fed by mouth and resourse was had to nutrient enemata, which were retained. Strychnine and morphia were given hypodermically

My excuse for recording these cases is that I have never seen nor heard of hemiplegia occurring in a case of pneumonia, and violent delirium is usually associated with a high and not a sub-normal temperature

I should be glad to hear if any one else has met with similar cases

ENLARGED SPLEEN AND ITS TREATMENT

By CHAS A JOHNSTON, M.B., D.P.H.,

MAJOR, I.M.S.

WITH reference to the recent article under this heading in the *Indian Medical Gazette* for February 1906, I would draw attention to my letter on the treatment of malaria to Government of India, dated 5th March 1901, where the efficacy of quinine hypodermically in all malignant cases was pointed out

By a strange coincidence I have just recently had a number of enlarged spleens from ague under my care, and I forward short statements of the cases for comparison with the method of treating such with bin iodide of mercury, as advocated by Mr V S Arunachalam Pillay, in your article mentioned above.

This drug (quinine bisulphate (pure) hypodermically) has been tried by me since 1896, and from the large number of practical results of the cases treated in hospital and elsewhere, it has been found that if the injection of quinine is adopted at once in malignant cases, it not only produces the desired effect of prohibiting the formation of crescents, but also brings the deranged internal organs, e.g., liver, spleen, etc.,

in a short time to their normal condition, if these are affected from malarial enlargement

The results thus obtained therefrom is far quicker and more permanent in comparison to the other plan of treatment

NOTE.—Tabloids of bisulphate quinine (the pure drug) have been used throughout. Dose 4 to 5 grains according to the severity of the cases. It has to be heated with 2 to 4 p.c. salt solution in a clean glass tube over a spirit lamp. The usual seat for injection selected is either flank, due antiseptic precautions have to be taken to clean the skin. After injection the part may be rubbed with carbolic oil, 1 in 40, for quicker absorption. By these means no signs of irritation at the seat of injection have been noticed

Hospital Assistant, No 1312, Syed Abdul Latief, took special notes and diagrammatic markings of these cases and did most of the injections, and my thanks are due him for the care with which he has drawn up these cases

Cases

(1) Sepoy, A M., age 21, admitted 13th January 1906. Patient suffered with well-marked malarial cachexia. Spleen indurated and hard extending down to 2" below navel, occupying whole of left hypochondriac region and a part of left iliac and epigastric regions, no fever, duration nearly three years

Previous treatment adopted was the old routine of local application of red iodide ointment and internally iron tonics with quinine, etc., but with no good results

The hypodermic injection of bisulphate quinine as stated above were given for five consecutive days, commencing from 30th January 1906, with local application of flying blisters. The patient was re-examined on 5th February 1906, and found that the enlarged spleen was reduced $2\frac{1}{2}$ ", but was now soft and diffuent with distinct tenderness (splenitis), the flying blisters were applied once more, internally iron tonics, convalescent exercise. The patient was discharged convalescing and sent on sick leave on 11th February 1906, to make room for other cases, space in hospital being very limited

(2) Recruit, K D., age 19, admitted 28th January 1906. Duration of enlarged spleen, 6 months

On admission, the patient was very much emaciated, anæmic with an enlarged spleen extending down to within 1" above navel. It was painful to the touch

Temperature since his admission varies 100.4 to 102.2. Quinine hypodermically began on 30th January for five consecutive days, the second day after injection temperature remained normal. On 5th February the spleen had shrunk to within the costal arch.

Iron tonics, convalescent exercise continued. The patient was discharged fit to his duty on 5th February 1906, the progress in this case was very rapid

(3) Sepoy, S D, age 24 years, admitted 26th January 1906 Duration of enlarged spleen, $1\frac{1}{2}$ year Patient constantly suffered from ague and its sequelæ Spleen enlarged down to within $1\frac{1}{2}$ " above navel. Quinine hypodermically began on the 30th January The enlarged and indurated spleen was found to have regained almost its normal size on 5th February 1906

(4) Sepoy, T J, age 22, admitted 29th January 1906 Duration of enlarged spleen, one year Patient was anæmic after attacks of ague, size of the enlarged spleen was 5 fingers' breadth below costal arch, extending 1" beyond the median line It was very hard Quinine injection began on 30th January 1906, and when examined on 5th February 1906, spleen was found very much shrunken and only just palpable

(5) Havildar, R V, age 35, admitted 23rd January 1906 Duration one year Enlarged spleen extending down to 3 fingers' breadth below costal arch Quinine hypodermically began on 30th January The spleen almost regained its normal size and was just palpable on 5th February 1906 A few days later he was fit enough for duty

(6) Sepoy, G, age 21 Duration about a year Spleen found enlarged to within 1" above navel Treatment began on 30th January, on 5th February spleen was only just palpable

(7) Sepoy, A H, age 22 Duration 6 months Spleen found enlarged, about 4 fingers' breadth below costal arch and $\frac{1}{2}$ " within the median line Treatment began on 30th January, and on 5th February spleen was only just palpable

(8) Sepoy, S, age 24 Duration 3 months Spleen found enlarged, about 3 fingers' breadth below costal arch Treatment began on 30th January, and on 5th February spleen resumed its normal size

(9) Sepoy, A, age 24 Duration 6 months Spleen enlarged, about 3 fingers' breadth below costal arch Treatment began on 30th January, on 5th February spleen regained its normal size

(10) Sepoy, K, age 23 Duration about 3 months Spleen enlarged, about 2 fingers' breadth below left costal arch Treatment began on 30th January, on 5th February spleen found to have regained its normal size

(11) Sepoy, N, age 22 Duration 4 months Spleen found enlarged, 2 fingers' breadth below costal arch Treatment began on 30th January, and on 5th February spleen regained its normal size

(12) Sepoy, S, age 18 Duration 4 months Spleen enlarged, 2 fingers' breadth below costal arch, spleen just palpable on 5th February after hypodermic injection of quinine begun on 30th January

(13) Sepoy, H S, age 18 Duration 4 months Spleen found enlarged, $1\frac{1}{2}$ finger's breadth Treatment began on 30th January, and on 5th February spleen regained its normal size

(14) Sepoy, K, age 23 Duration $3\frac{1}{2}$ months Spleen found enlarged, about $1\frac{1}{2}$ finger's breadth

Treatment began on 30th January, on 5th February spleen resumed its normal size

(15) Sepoy, B, age 23 Duration 3 months Spleen enlarged, 2 fingers' breadth below costal arch Treatment began on 30th January, and on 5th February spleen regained its normal size

(16) Sepoy, L, age 21 Duration 6 months Spleen found enlarged, about 3 fingers' breadth below left costal arch Treatment began on 6th February for 5 consecutive days, on 23rd February 1906 spleen found to have reached almost its normal size

(17) Sepoy, S, admitted on 4th February 1906 Duration nearly a year Spleen was found enlarged, about 4 fingers' breadth below costal arch Treatment began on 6th February, on 13th February spleen was found shrunken and just palpable

(18) Havildar, H, admitted 6th February 1906 Duration of illness 4 years Spleen was found very indurated and enlarged from left costal arch to 1" beyond navel Treatment began on the 6th (the date of admission) for 5 consecutive days On the 13th spleen was found shrunken, about 2 fingers' breadth The treatment continued On the 28th when examined, spleen was again found shrunken, about 1 finger breadth He is steadily improving now and his spleen is getting smaller daily

There are more cases, but it would be mere repetition to insert them

SERVICE NOTES

LIEUTENANT M F REANEY, I M S, is appointed to the officiating medical charge of the 39th (P W O) C I Horse

WE much regret to learn of the sad death of Major J S S Lumsden, M B, F R C S (Ed) Major Lumsden was a well known and popular Civil Surgeon in the United Provinces and had suffered severely from sciatica. He was, we understand, on leave last year, and returned to duty in November, only to be obliged to go again on leave from 23rd December. He died on 19th March in London

WE regret to have to chronicle also the death, from liver abscess, of Major D Simpson, M B, I M S, Professor of Midwifery, Madras, and Superintendent of the Government Maternity Hospital. Major Simpson was a rising and successful medical man in Madras. A couple of years ago he published a useful little book on the Diseases of Infants in India

MAJOR G Y C HUNTER, I M S., has joined the Punjab Jail Department

THE King has approved of the retirement of Lieutenant Colonel H C Binerjee, from 1st February 1906, and of Lieutenant-Colonel K A Dalal, I M S, from 3rd January 1906

MAJOR A H NOTT, I M S, goes on leave in May, and Captain E E Waters, I M S., goes to Murshidabad as Civil Surgeon

MAJOR O F FEARNSIDE, I M S, an officer of great jail experience, succeeds Major A R. Anderson, I M S, as Senior Medical Officer, Port Blair. This is the first appointment under the new regime at the Andamans. There is ample room for the most energetic of Medical Officers in that settlement.

COLONEL A M CROFTS, I M S, comes to Bengal to act as Inspector General of Civil Hospitals, during the 6 months' leave of Colonel R Macrae, I M S

Indian Medical Gazette.

MAY, 1906

MEDITERRANEAN FEVER IN INDIA

UNDER the above title, Major Geo Lamb, M.D., I.M.S., assisted by Assistant-Surgeon M. Kesava Pai, M.B., C.M., (Mad.) has published *Scientific Memoir*, No 22

We have in our last issue referred pretty fully to the history of the question of the existence of the fever generally known as Malta or Mediterranean fever in India, and stated that in view of the facts as put forward in this memoir, we were obliged to admit that Malta fever is one of the indigenous continued fevers of India.

Much, however, yet remains to be done before this matter is settled, and the question of the etiology of the disease, its existence in other Provinces than the Punjab, and its possible connection with goats' milk has not yet been discussed in India.

We may say at once that the evidence on which Major Lamb and Dr. Pai rely is largely, if not chiefly, bacteriological, rather than clinical. It consists of the examination of blood of healthy individuals, of bloods sent to the Pasteur Institute, and a series of cases chiefly in Punjab or Sikh sepoy regiments in the Punjab and on the N-W Frontier.

More important even than the serum diagnosis is the record of the isolation from the spleen during life of a "coccus indistinguishable bacteriologically from *M. Melitensis*." In fact, our authors contend "that this bacteriological test is a delicate one, and that it affords an easy and absolutely trustworthy method of diagnosis between this disease and other fevers which clinically simulate it."

The cases referred to in this monograph are classified by Major Lamb into two groups, viz, (1) those in which the *M. Melitensis* was isolated from the spleen during life, and (2) those in which no splenic puncture was made, the diagnosis resting solely on the clinical history and the serum agglutination reaction.

In the first group there are eleven cases, and in all a small coccus was isolated which "presented the characteristics regarded as justifying

the organism being with confidence regarded as *M. Melitensis*."

So far so good, but we are bound to admit that except for the long continued pyrexia the clinical symptoms as here given are not very characteristic or very convincing—

Case i, long fever, died of exhaustion, only characteristic symptom was profuse sweating, no autopsy. Case ii, long erratic "remittent" fever, acute pain in hip joint in third week, 'no other characteristic symptoms.' Case iii, high fever, relapse fever for several "weeks." "No other noteworthy symptoms present." Case iv, markedly remittent fever, over nine weeks, "no other prominent symptom." Case v, fever and bronchitis, fever markedly intermittent—no other symptoms mentioned. Case vi, fever intermittent, then remittent, apyrexia seven days, then relapse of fever lasting three weeks. No other symptoms mentioned. Case vii, remittent fever, "no chart or detailed record available." Case viii, fever, remittent in type, "complained at one time of slight pain in knee joint," later of severe pain in hip joint. Case ix, continued fever, slight delirium, pains in hip joint for few days in fifth week. Case x, remittent fever, "no other marked symptoms." Case xi, (European) long continued fever, joint pains, no orchitis.

Next come cases under group 2, above in which the causal agent was not isolated, but the serums gave good reactions with *M. Melitensis*, and our authors say they must be regarded "as undoubted cases of Mediterranean fever"—

Case xii, cough, fever, died 13th day, no other symptoms noted which are characteristic of Malta fever. Case xiii, long continued fever, seven weeks, no joint pains, at one time abdominal pain and vomiting. Case xiv, fever, cough, no enlargement of spleen, ten weeks fever in Ferozepore Jail, no tubercle bacilli found, no joint pain complained of.

Case xv, fever remittent, ten weeks, no liver or spleen enlargement, constipation at times, in fifth week, left wrist swollen, no other joints. Case xvi, fever, "very ill during third week," temperature over 105°F, slight spleen, constipation troublesome, no joint pains complained of. Case xviii, remittent fever, profuse perspiration, in fourth week joint pains, constipation and diarrhoea alternated, slight bronchitis.

Since above cases were recorded, nineteen other cases have been investigated and the serums of all the nineteen gave good reactions with *M. Melitensis*. "It is evident," concludes Major Lamb, "that Mediterranean fever is both common and widespread at any rate in the Punjab."

It is worth noting that all the above cases occurred in a few stations in Punjab, viz, Multan, Ferozepore and Lahore, and of the more

recent nineteen, above alluded to, there occurred five more in Ferozepore, eleven in Rawal Pindi, one in Mian Mir, and one in Jullundar and Delhi. So that the above conclusion as to the widespread existence of the disease in the Punjab must be accepted.

We must, therefore, accept as a fact, the existence of this disease. We have above quoted practically all that is given of the clinical facts of the above cases, and we think that it will be agreed that in the majority of them the purely clinical symptoms are but little in evidence, and without the bacteriological tests but few of them could be diagnosed. The occurrence of long-continued fever with occasional more or less severe joint pains would lead one to suspect this disease. Profuse sweating, if not due to tuberculous disease, would aid the diagnosis.

The disease has always been somewhat colourless, and the post-mortem appearances have never been, to the naked eye, at all characteristic. Certain symptoms, however, are more characteristic than others, *e.g.*, slight enlargement of the spleen and liver, with sometimes icterus, the slight bronchial catarrh, the profuse night sweats, tendency of fever to be wavy (undulant) or to intermit and relapse, the increasing weakness, and apathy, the rheumatoid, articular affections, the neuralgias, the orchitis, and epididymitis, and in later stages skin eruptions, and the very low case-death-rate. If a case of long-continued fever presents several of the above symptoms one need not hesitate to diagnose Malta fever, and the serum agglutination reaction, if conducted in a proper laboratory and in expert hands, will confirm the diagnosis.

We appeal to our readers to send us more cases of this disease. Its existence in the Punjab is clear from the above, but what about it in other Provinces and Presidencies? Medical officers of regiments and of prisons are especially advised to be on the look out for this disease. In view of its establishment as an indigenous continued fever of India it is worth considering if a second edition or even a reprint of the valuable monograph on this disease by the late Captain L. Hughes, R.A.M.C., should not be called for.

Meantime we shall be glad to publish further information on this fever, and we congratulate Major Lamb and Dr. Pai on the fact of their having established the existence of another of the great fevers of India.

Current Topics

CEREBRO SPINAL MENINGITIS IN INDIA

WE are very glad to see this report by Captain C. J. Robertson-Milne, I.M.S., who was placed on special duty for the investigation of the prevalence of Cerebro-spinal Meningitis, or "Cerebro-spinal Fever" as it is more commonly called, in India.

This disease has for the past quarter of a century been recognized by medical men as one of the great continued fevers of India, but owing to a silly statement of Hirsch, in his *Geographical Pathology*, many years ago, the existence of the disease in tropical and sub-tropical lands has been ignored by most English, German and American writers, and even such an up-to-date book as the first volume of the new edition of Clifford Allbutt's *System* ignores the fact of its existence in southern climes.

Captain Robertson-Milne's book will for the future render such ignorance impossible. It is probable that to the Bombay Medical Service is due the honour of the first recognition of this disease in India. Vandyke Carter in his book on *Spirillum Fever* in Bombay, refers to cases which he saw in 1878, but it is to Lieutenant-Colonel H. P. Dimmock, I.M.S., that the honour belongs of first thoroughly recognising and fully describing the disease, in his report on cases which he had seen in the Shikarpur Jail in the cold weather of 1883-84. In 1886 the great fatality of a disease then called "Remittent Fever" in the Central Jail, Alipore, Calcutta, attracted attention, and a special committee was appointed to study these cases, which were soon proved to be cerebro-spinal fever. Cases persisted in the mild but characteristic dropping way for over ten years in that prison, which, however, has now been long free from any but a rare sporadic case. Later on the big Central Jail at Bhagalpur has had persistent outbreaks for three or four years, but has been now for some two years free from the disease.* Cases too have frequently persisted in the Emigration Depôts at Garden Reach, Calcutta, and cases are frequently met with in emigrant sailing ships between Calcutta and Natal and Calcutta and the West Indies.

In the section on etiology Captain Robertson-Milne has collected all that is known on the subject, the oft-repeated statement of a connection between insanitation and the disease finds no favour, as our author says—"The inmates of Indian Jails are living under conditions of health, which contrast very markedly with those of the ill-ventilated and squalid huts and hovels which form their homes. The buildings in Central Jails wherein most of the epidemics

* The following are some of the most important references to this disease in this Gazette.—*Indian Medical Gazette*, September 1902, January 1901, June and July 1901.

have occurred are large barracks amply ventilated, etc."

The Bhagalpur dust theory is given in full, and our author agrees that there is a "strong presumption of some relation between dust and the disease" It is certainly the only attempt which has been made of recent years to throw light on the etiology of this fell disease

The bacteriological aspects of the disease are very fully treated, and indeed we have nothing but praise for the complete way in which the subject has been treated. Considerations of space prevent us from dealing more fully with this monograph, and this is the less necessary as it will be widely read in India, and we can, in conclusion, heartily commend it as a reliable and complete monograph on the disease as it has been known in India

BERI-BERI AND DIET.

THE connection between beri-beri and some form of food is one which has been long commented upon, but nothing very definite has been proved. Rice is especially the article of food which has been most often incriminated, and recently Mr C Hose, Dr S Lucy of Penang, and Dr Braddon have emphasised their views of the connection between the disease and the consumption of rice

We may at once say that the numerous other theories about beri-beri have failed to be convincing and the recent elaborate attempt of Dr Hamilton Wright to connect a decrease of beri-beri with an increase in general and personal hygiene in the Kuala Lumpur Prison is not altogether satisfactory and is probably discounted by the fact that for some "years past beri-beri has been on the wane in the Straits and Native States," and "the case-mortality has materially decreased"

Now first of all let us say a few words about the prevalence of this disease in India. It is, on the whole, not an Indian disease. It is unknown or practically unknown we believe in all northern India from Calcutta to Quetta, for the cases among the Chinese community in Calcutta prove nothing, it is known certainly in Southern India, where it was first accurately described over half a century ago. Recently a few cases have been reported from the Gairi Hills and a brief outbreak in the Jail at Gauhati and in this issue we publish a valuable report by Major Hall on a large epidemic in the Sylhet Jail, Assam, but it is usually unknown among the rice-eating millions of Bengal and Eastern Bengal, just as it is unknown among the eaters of wheat and other cereals in the United Provinces and the Punjab*

On the other hand if we cross the Bay to Rangoon we find an abundance of beri-beri. Some years ago Major O C Barry, I.M.S., gave some statistics which showed that there were between 300 and 400 beri-beri patients treated annually in the Rangoon General Hospital, and that the vast majority of these patients were Tamils from Southern India (*I M G*, May, 1901, p 196). This fact is important for Dr Tertius Clarke has shown in these pages (*I M G*, March, 1901, p 114) that beri-beri in Perak was extremely rare among the Tamil immigrants into that country, whereas the Chinese coolies in Perak suffer very severely. This as we said at the time points to some dietetic factor, for why should the Tamil suffer largely from beri-beri in Rangoon, more so than in his own country, and escape the disease in Perak, where it is very prevalent?

The question of rice, however, becomes more complicated when we come to inquire into the matter. Dr Lucy (*Journal, Malaya B M A*, December, 1905, p 41) has investigated this point recently and says that the kind of rice eaten by his beri-beri cases, Chinese, Malays, Javanese, and Tamils working for a Chinese contractor, was the "uncured" variety, and this is the view of Dr Braddon who contends that beri-beri is the result of an intoxication by a poison conveyed in "uncured" rice

Dr Lucy's paper brings additional evidence in favour of Braddon's theory. This "uncured" rice is mainly rice of the kind known as Rangoon or Siam rice. It is said to "deteriorate rapidly, and become mouldy, stale and malodorous," (Lucy), and Dr Lucy gives examples of severe outbreaks of beri-beri among gangs of miners and labourers in distant, up-country places, where transport is bad, and it is possible that the rice arrives in a mouldy condition, and certain stores of rice seen by Dr Lucy at Singapore for the use of coolies are described by him as "stinking, mouldy and infested with insects"

He also says that the Rangoon rice coming to the Straits is of "the worst quality, badly cleaned and rapidly becomes fungus-grown." This is certainly not the case with the rice imported into Calcutta as "Burma" rice, which is exceptionally clean, white and dry, indeed much whiter and cleaner looking than good Bengal rice of ordinary quality. It is probable, however, that in Calcutta, we get good Burman rice, which must be of good quality to compete in Bengal markets with the local rice, and we know that several years ago considerable quantities of "Burma rice" was purchased in Calcutta and used in the prisons of Bengal, and no beri-beri resulted —

Dr Lucy sums up his paper as follows —

"I have never met with a case of beri-beri in a person who was not an eater of "uncured rice," and have never seen a case amongst "Kampong Malays" or Estate Tamil coolies. All these people are, under normal conditions, eaters of parboiled or fresh rice

* The Report of the Sanitary Commissioner, India for 1904, p 130, registers 27 cases among European troops in India, men only, none among women and children, 49 cases in the Native Army and only six cases in Native Prisoners. We may be permitted to doubt the accuracy of the diagnosis in the cases of European soldiers

Tamils and Malays are, in this country, immune from beri-beri only so long as they eat "cured" or "fresh rice", feed them with uncured rice and that immunity no longer exists.

Beri-beri in epidemic form, commonly appearing amongst Chinese coolies, is unknown among Tamils, Malays or Javanese, who are frequently employed in large gangs in remote districts in road and railway construction, and who work under precisely the same conditions as the Chinese.

Where gangs of Javanese, Malay or Tamil coolies are employed side by side with Chinese in opening up new country for road or railway construction, the Javanese, Malays, and Tamils may suffer from dysentery and diarrhoea, but they don't get beri-beri, whilst the Chinese do get beri-beri, it may be in addition to the above-mentioned bowel complaints.

Dr Daniels states in his *Studies*, volume III, part I, page 51 "It is to race customs and habits or modes of life that difference in incidence in different races must be attributed."

The one factor producing this difference in incidence between Chinese coolies and the coolies of other nationalities in the Straits seems to me to be the custom of the former people in eating "uncured rice" as opposed to the "fresh" or so called "cured rice" common to all other natives."

The important point which results from this discussion is that in cases of beri-beri or among communities which suffer particularly from it inquiry should be directed specially to the rice, and to its method of preparation from paddy. It is not conceivable that a germ should exist which would resist the boiling necessary for cooking, but a toxin could remain unaltered. The method of making the rice from the paddy seems important, "Rangoon rice" as seen in Calcutta is, as we have said, clean and white, it seems as if a cuticle was removed. We do not know how this rice is made, but in Bengal the method is as follows—

The paddy is first soaked in water in vats and then taken out and boiled in tin or iron vessels with very little water. It is then spread out on the cleaned ground or better on a cement platform and sun-dried. It is then husked in a *denka*, and all the husks removed. Further husking gets rid of dust and fine cuticle till the rice is almost white or rather cream coloured. It is then ready for sale. In Bengal rice is cooked by boiling with a small quantity of water and 1 lb of dry rice expands into about 3 lb of cooked rice. Beri-beri does not result from the use of Bengal rice so prepared.

BERI BERI IN THE JAPANESE ARMY

It is often pointed out that the experiences of the Japanese and Russian armies in the recent great war seemed to show that the Medical authorities on both sides were more successful in keeping down sickness than was the case with our own army in S Africa in the Boer war.

It is however by no means clear that this is a fact, and although certain American Military Surgeons have indulged in heroics and talked of the microscope being more in evidence than the magazine rifle, yet it is by no means certain

that there was not considerable suffering from sickness on both sides. One fact, however, is certain there was no Mr Burdett Coutts to chronicle it, and such an interfering gentleman would have received but short shift at the hands of either the Japanese or Russian Authorities.

If however the rival armies did not suffer from enteric this was due to some racial or climatic antipatheticity to the disease and cannot all be due to a superior foresight and organization. It may also be remembered that our Indian army in China in 1900-01 did not suffer from this disease.

Yet one disease did seriously attack the Japanese army and that was beri-beri, or as it is called in Japan "kakke". During the second year of the war not less than 80,000 cases of beri-beri occurred in the Japanese army. In fact Dr M Heizog, of the Manila Laboratory, who was deputed to study this disease in the Japanese Army goes so far as to say that,—"given certain environments and certain compulsory conditions *kakke* in the present state of our knowledge cannot be considered a preventable disease" (*Philippine J of Sci*, No 2, February 1906, p 170).

In the great base hospital at Hiroshima there were usually 700 cases of beri-beri, and Dr Heizog had ample opportunity for study under Surgeon-Major Kokubo of the Tokyo "Netley," who was then in charge.

Kokubo has isolated a micrococcus from the urine of these cases, and Professor Miura maintains that beri-beri is a food disease and that the infection was conveyed in the food sent from Japan to the Army in Manchuria. It will be remembered that beri-beri used to be said to have been abolished from the Japanese Navy by the issue of more nitrogenous dietary. It may after all only mean that this meant the lesser use of infected rice. Here again we come back to the rice theory. It is curious how impossible it is to get rid of the connection between rice and beri-beri.

THE RAPID FORMATION OF ADIPOCERE IN INDIA

The cases reported in this issue by Major J C Vaughan, I M S, Police Surgeon, Calcutta, of the rapid formation of adipocere in a climate like that of Bengal should put once and for all an end to a controversy which has existed for some years past.

For the benefit of a younger generation we may very briefly refer to the previous discussions in the subject.*

In 1889 Dr S Coull-Mackenzie, I M S, then Police Surgeon, published (*I M G*, 1889, p 42) a series of cases which showed beyond all reasonable doubt that adipocere formed very rapidly

* The whole subject is admirably discussed in Dr Smith's new edition of *Taylor's Medical Jurisprudence* and all the Indian references are given in full, Vol 1, p 314, etc.

in bodies immersed in tanks or in the River Hooghly in the damp climate of Calcutta

This was accepted by all in India, but in 1897 appeared in our columns (April 1897, p 134) a letter from Dr G H F Nuttall, now of Cambridge, then studying in a Berlin Laboratory. He was opposed to the Indian experience apparently chiefly on theoretical grounds. These opinions were challenged by Major D M Mon, I.M.S., who quoted cases of his own in support of Dr Coull-Mackenzie's opinion, and in our Medico-legal Number (June 1902), we collected and quoted all the Indian cases of a rapid formation of adipocere.

The cases reported by Major Vaughan in the present number then are important, as they not only confirm the views of all observers in India, but may be said to put the controversy entirely at an end.

It must, therefore, be accepted that in hot and damp climates like that of Lower Bengal adipocere may, and does, form extremely rapidly, and that opinions founded merely on European experience are of no value with reference to India.

We shall be glad if readers in other parts of India can give us instances, so far all we have been able to collect have come from Lower Bengal.

MOSQUITOES AND MALTA FEVER

In a note in our last issue we quoted from an article which severely criticised the goat's milk theory of the spread of Malta fever, and which showed that even if the use of unboiled goat's milk was a cause of Malta fever in the women and children of the garrison at Malta and in the native inhabitants of Malta and Gibraltar, who drank the milk of goats unboiled, yet milk was not a drink to which the British soldier or the British sailor was partial and the undoubted occurrence of Malta fever in goats, cows and even horses would not explain its great and often seasonal prevalence in British regiments in Malta and at Gibraltar.

In the fourth part of the Report of the Commission on Mediterranean Fever, just published (February 1906), among a lot of valuable articles there are a couple which deal with the possible connection between mosquitoes and this fever. There are plenty of mosquitoes in Malta, and the following species have been identified, *viz*, *Culex pipiens*, *C. fatigans*, *C. spathipalpis*, *Stegomyia fasciata*, and *Acoitomyia zammiti*. In all 896 mosquitoes were dissected, and in four cases the microorganism was recovered, subjected to the most rigorous tests and its pathogenicity established. The number, four out of 896 mosquitoes, is certainly small, but not unexpected, when we consider the small number of specific micrococci which are to be found in the peripheral blood of Mediterranean fever patients.

While therefore it must be admitted that mosquitoes may or can transmit the germ of Malta

fever from a sick man to a healthy one, yet it cannot be maintained that this is the usual or even a common method of infection, and Lieutenant-Colonel A M Davies, R.A.M.C., now Professor of Hygiene in the new Medical Staff College, in his complete and interesting paper which is not only the longest but the most valuable in the present part of the Commission's Report, does not attach very much importance to this method of spread. The cause therefore is yet to seek, and it may be found in a localised infection or a semi-direct contagion. The sanitary defects of the barracks and hospitals at Malta are many and great, and till they have been removed it cannot be said that all has been done that is necessary.

The method of spread is yet to be found, but the results of the work of this Commission have been so largely successful so far that we have every confidence that the secret will not much longer evade their observation.

PLAGUE AND FLEAS

ADDITIONAL evidence incriminating the flea as the factor of importance in the spread of plague is daily accumulating. We all know that this doctrine has been preached by Capt Glen-Liston, I.M.S., but we understand that the researches of the present Plague Commission tend also strongly to support the flea as the missing link in the chain of infection.

We understand that the experience of the medical officers at work in the plague-stricken towns of Patna and Saran districts in Bengal is also in favour of the flea as an intermediary, and recent information received from Bombay points in the same direction.

Certain recent experiments have been as follows—A room was taken in which rats dead of plague had been found. Animals were placed in this room, some unprotected, others protected against rat-fleas by means of fine gauze coverings to their cages. The unprotected animals were attacked by fleas and died of plague, the protected animals entirely escaped. Another good case is also quoted. In a village near Bombay there were a few cases of plague, and dead rats were found in the houses. The people sensibly cleared out, and captive animals, protected and unprotected against fleas, were introduced. The unprotected animals were attacked by fleas, the fleas were found to be affected by plague, and these animals died, the protected animals remained unharmed.

The importance of the flea explanation of the spread of plague is that it emphasises the proved value of evacuation, while it also shows how ordinary disinfection has so often proved useless.

It is therefore, incumbent on all sensible people to at once evacuate a house or room in which dead plague-infected rats have been found.

Disinfection should then be directed to all and every method whereby fleas lurking in clothes, carpets, rugs, mats, floor cloths, curtains, etc., are

destroyed Kill all the fleas and kill or drive away the rats by using good traps or the "commonsense exterminator," let in fresh air and sunlight, expose all clothes, carpets, curtains, etc., to the sun, if they cannot be boiled, that is, get rid of the fleas before the room or house is re-occupied The value of flea powders, etc., is yet to be determined, but at any rate our present knowledge bids us beware the flea

LEISHMAN DONOVAN INFECTION AT PENANG

It is of considerable importance to learn the limits of the infection by the Leishman-Donovan bodies and the resulting cachectic fever We note in the *Journal* of the Malaya Branch of the British Medical Association, December 1905, that two cases of this infection were reported by Dr G D Free

He reports that his attention having been called to this infection, he was on the look out for this in the Penang Hospitals and examined many cases, mostly Chinese, but failed to find the Leishman-Donovan body In January, 1905, he examined two Indian patients, quaintly described as "Bengalis," whose home was at Sultanpur in the United Provinces These men stated that they had "no fever before leaving India," a very doubtful matter in our opinion Dr J Cooke who sent in these patients to Dr Free said, they had suffered from chronic irregular attacks of fever, with anæmia and enlargement of the spleen, and that quinine and arsenic had failed to be of use Both patients got gradually worse, œdema diarrhœa, spleen and liver enlarged, emaciation, and in one case gangrene of the skin around the external meatus No malarial parasites were found on examination of the peripheral blood, but an examination of the blood obtained by spleen puncture showed bodies exactly resembling the Leishman-Donovan bodies The blood count was as follows —

	Mathura	Gotmul	Normal Blood of a Native (L Rogers)
Red corpuscles	1,532,000	2,240,000	5,000,000
White "	2,272	1,968	8,000
Ratio of white to red	1-674	1-1,138	1-625
Per cent Polynuclears	18	19	70
" Lymphocytes	61	64	25
" Large mono nuclears	20	15.5	5
" Eosinophiles	1	1.5	

"From the above, it will be seen that both white and red corpuscles showed a marked reduction in number per c mm, but especially the former The percentage of polynuclears was far below the average, while the percentages of lymphocytes and large mononuclears were relatively increased

"This agrees with what has been observed in cases of "Kala-azar" It is as well here to state that several authorities have pointed out that

splenic puncture in "Kala-azar" cases is not without danger, and for this reason Dr Leonard Rogers lays great stress upon the blood count of the peripheral blood as a means of diagnosis from malarial cases, in preference, as a rule, to splenic puncture for the purpose of finding Leishman-Donovan bodies He says the extraordinary reduction of the polynuclear leucocytes is the most remarkable feature of "Kala-azar," while the percentages of lymphocytes and large mononuclears are relatively increased, although their total numbers per c mm are much below the normal"

These cases do not prove that the Leishman-Donovan infection is found indigenously in Penang, as the coolies had at the time they were examined in the Penang General Hospital been only four months out of India It is probable that they brought the infection with them, from India, but have cases of this infection been met with in Oudh or other districts in the United Provinces?

THE OCCURRENCE OF SCHISTOSOMA JAPONICUM IN THE PHILIPPINES

We have already referred (April, p 149), to the recent researches on the distribution of the trematode parasites known as Schistosomes in a discussion on the prevalence of bilharziosis in India In the first number of the *Philippine Journal of Science* (January, 1906), there is an article by Dr Paul G Woolley, on the occurrence of the *Schistosoma Japonicum* in the Philippines

This variety of trematode became known to most medical men recently by the publication of Dr Catto's paper in the *British Medical Journal* (Vol I, 1905, p 11) It has since become clear that this variety of distoma or Schistosoma, as it is now called, is identical with the variety known for some years past in Japan, of which Katsurada described 15 cases in 1904, and in October of the same year he announced in a German publication the discovery of a female *S Japonicum* in a human subject They differ from the Egyptian distoma, which is the cause of the affection known as bilharzia disease in Egypt and in S Africa One province of Japan is considerably affected by this parasite The symptoms as given by Katsurada are defective physical development in children, diarrhœa, anæmia, ascites Then follows a peculiar condition "the hypogastric region seems to shrink, while the epigastric enlarges, a transverse furrow forming directly above the umbilicus, so that the general appearance of the abdominal region is that of an inverted gourd" Dilatation of the epigastric region and of the lower part of the thorax was noted even in patients whose liver and spleen were not much enlarged There is an initial increase in size of the liver, followed by a decrease, a secondary enlargement of the spleen, a mucosanguineous diarrhœa, severe attacks of ascites, and progressive anæmia The ova of the sch

japonicum, and of numerous other parasites are found in the stools the patient

Dr Woolley described his case in a prisoner who died suddenly of "a terminal bacterial infection in the course of intestinal amœbiasis and uncinariasis," or to translate this into words more familiar in India in a case of "terminal dysentery" occurring in the course of chronic dysentery complicated by ankylostomiasis. The liver was in a state of "fibrosis" (cirrhosis), the spleen was somewhat enlarged, and the lesions of the intestines resembled those found in amœbic dysentery

Those interested in intestinal parasites are recommended to look out for this parasite. It may well be that it is also known in India. Cases with symptoms like those above described are certainly common, though differently interpreted, and we have recently chronicled the finding of an allied schistosome (*sch indicum*) in horses and donkeys (see *Journal Trop Vet Sci*, No 1, p 45)

THE X-RAY INSTITUTE FOR INDIA

The following is the Government Resolution on this subject —

"The Government of India have decided, with the approval of the Secretary of State, to establish an institute in India as a centre for the practical instruction of medical officers and subordinates in the use and management of X ray apparatus and as a depot for the storage and repair of such apparatus

2 The institute will be located at Dehra Dun and will be under the superintendence of an officer of the Indian Medical Service, who will receive the pay of his rank and the staff pay sanctioned for a medical store keeper and will be provided with the necessary subordinate establishment to assist him in his duties

3 Classes will be held for the instruction of medical officers and subordinates in civil and military employment, the course of instruction in each case extending over a period of about three months. Officers in military employ attending the classes will receive the pay and allowances of their substantive appointments and travelling allowance under the rules which govern their case. Officers in civil employ permitted to attend will draw the pay of their substantive appointments and travelling allowance at the rates permissible under the Civil Service Regulations

4 The Government of India trust that local Governments will afford all reasonable facilities to medical officers and subordinates serving under their jurisdiction who may be desirous of acquiring a practical knowledge of the X ray apparatus and in whose case the possession of such knowledge would be of advantage, to enable them to proceed to Dehra Dun for instruction at one of the classes. Applications for permission to attend the institute should be made to the local administrative medical officer in each province, who should submit his recommendations, after obtaining the approval of the local Government in each case, to the Director General, Indian Medical Service

We recently had an opportunity of seeing the plans for the new surgical block at the Calcutta Medical College. It will be remembered that at the laying of the foundation-stone it was said that it was to be built after the plan of the Bhatinda Hospital, Vienna. Such a description

however, is only partially correct, for in many ways the new Calcutta hospital will far surpass the block in the Kaiserin Elizabeth Hospital Vienna. In fact it is a vastly improved design, and the small stuffy wards which are a feature of the Vienna Hospital will not appear in the Calcutta one

The general shape of the new hospital block is something like a Maltese Cross. It will have a high basement and over this two stories, and the central portion will have three stories. On each of the main (right and left) wings, will be four wards, two on each wing, and eight in all. Each wing will contain wards with ten beds and a floor space of 110 sq feet per head. Each ten-bed-ward will be isolated, that is, will have verandahs or passages on all four sides. The latrines and bath-rooms will be quite apart and separated by a cross-ventilated passage. Nurse rooms will be similarly away from the main wing, and a servants' room at either end of each wing will prevent the congregation of servants in verandahs and passages. In the other two and short arms of the Maltese Cross, will be the operating theatres, two, each with its students' galleries, its anaesthetic room and a common sterilising room. Rooms are also provided for the surgeons. On the lower floor are excellent rooms for the examination and reception of patients. Above is a pathologist's room and above this a small laboratory. Separate entrances are provided for students. Another useful feature is the provision of eight small special one-bed wards, for important operation cases.

The whole hospital will cost about six lakhs, and has been designed by the staff of the Medical College and the details have been ably carried out by Mr Banks-Gwyther as architect. When completed, it will form a very imposing and important, and we may add much-needed, addition to the Calcutta Medical College.

The following experiments on the destruction of mosquitoes are reported in *Marine-Hospital Public Health Reports* (No 5, February 1906). The substance named here "Culicide," or "Mims' Culicide" is the invention of Professor Mims of New Orleans. It is the vapour produced by the heating of a mixture of carbolic acid and camphor. It is used for fumigation of rooms in place of sulphur.

The following conclusions have been published —

"1 Culicide in the proportion of four ounces per 1,000 cubic feet used for two hours with apparatus similar to that used by us kills *Culex pungens*, *Stegomyia*, and *Anopheles maculipennis* and temporarily stuns the house fly

2 In the proportion of three ounces to 1,000 cubic feet it does not always kill the *Anopheles maculipennis*

3 Culicide takes fire spontaneously if heated sufficiently. It is therefore necessary to keep the liquid at a certain distance from the flame, it is also better to have more than one basin in a large space, and about eight ounces is the maximum quantity to use in one

pan All large cracks must be pasted up - the doors and windows if loose fitting Gummed paper spread under a window would be of great benefit

4 In the hands of intelligent operators, and used according to the methods employed by us, it ranks next to sulphur as an insecticide in practical fumigation

5 Culicide vaporizes and later cools, condensing on exposed surfaces again as it cools Whether in this way it injures articles of gilt and the like was not investigated In practical work the only articles removed from rooms were food stuffs and animal pets and no complaint of injury was received It gradually evaporates, leaving a persistent, though not disagreeable, odour

As to the cost with the present high prices of the ingredients of Culicide, the cost of fumigating a room with four ounces to 1,000 cubic feet is 16 cents per 1,000 cubic feet, as compared with sulphur of 7 cents, and pyrethrum of 50 cents, using two pounds of each of the latter per 1,000 cubic feet The estimate does not take into consideration the alcohol used to evaporate the Culicide, but this is not much more, if any, than that used to ignite pyrethrum or sulphur pots A further saving in favour of Culicide is that the apparatus can be easily carried in the hands from place to place Had sulphur been used in the instances cited a wagon would have been necessary to transport the materials, which were, in the case of Culicide, conveyed in street cars The gang would have had to be larger to move the many articles from a house necessary to be removed in sulphur fumigation, to say nothing of the larger amount of pasting to be done Likewise at the end of the fumigation the time required to remove apparatus from the room is much less For this and other reasons, if the cost of the labour is counted, I do not believe Culicide is much more expensive than sulphur, and if the cost of the articles damaged by sulphur is considered, the difference would be in favour of Culicide"

MAJOR G LAMB, I.M.S., M.D., submits the fifth report of the Pasteur Institute of India There has been a very steady increase in the number of patients using this institute, while 321 used it in its first year of existence, 612 used it in 1904, and during the past year the figures rose to 877 This is a very satisfactory testimony to the increased usefulness of the institute The figures are made up of officers, men, women and children of British Army 205, of the Indian Army 70, European "civilians" 94, Native "civilians" 508 Dogs, and next jackals, were the animals which inflicted the largest number of bites Details are given of eleven cases in which the treatment failed to give relief

In addition to the anti-rabic work the institute has done a great deal of good work in making antivenene, antitetanic serum and antidiphtheritic serum The antivenene now issued is a mixture of cobra and daboia venoms It is efficacious for bites of these snakes, but of course it is useless against bites of other Indian species

Captain W F Harvey, I.M.S., is now assisting Major Lamb in the working of this excellent institute

THE name of Dr A H Doty, the Health Officer of the Port of New York, has become well known in relation to the extermination

of the mosquito We, therefore, turned with interest to an article by him on this subject in the February number of *The American Journal of the Medical Sciences* It cannot be said, however, that there is much that is new in the article, to those who have worked at the subject in India, but the investigation of the habits of the *Culex sollicitans*, which deposits its eggs on the ground in the saltmarshes of the New York coast is interesting, and it is worth investigating if this or a similar variety exists in the saltmarshes and brackish waters of say, the neighbourhood of the Hoogley or in the Sunderbans

Dr Doty gives certain experiments which show that mosquitoes (*Stegomyia*) confined in clothing, bedding, etc., do not survive over 30 hours, and the "treatment of baggage" coming from infected ports is not necessary, provided the journey is over two days in length On the distance which mosquitoes travel Dr Doty has something to say, but the dangerous species are "notoriously home mosquitoes," therefore, we should first examine our own surroundings before blaming our neighbours As regards the extermination of these pests we are glad to see Dr Doty urging drainage and filling up of depressions in the ground This has banished the mosquitoes from the New Jersey swamps and "crops of hay, harvested by mowing machines," have succeeded to the swamps whose crop till recently was swarms of mosquitoes

For the "inland" mosquito (*Culex pipiens*) Dr Doty recommends not only drainage, and filling up, but also the education of the people, and the removal of all possible receptacles which might hold water, and where these cannot be filled up or drained the use of cheap crude "Lima" oil in the proportion of one pint of oil to every 400 square feet of water surface (or, as Dr Doty puts it, "to a water surface of about 20 feet in diameter") This procedure must be repeated every two weeks Experiments with other substances have proved less effective The clearing away of "high grass and underbush" where the mosquitoes abide by day is also imperative, but "draining and filling up of ground depressions" is the most important of all

WE have before us the first number of *The Philippine Journal of Science*, January 1906 This new Journal is an outcome of the numerous and valuable bulletins issued by the Bureau of Science of the Government of the Philippine Islands It is edited by Dr Paul C Freer, and the co-editors are Dr R P Strong and Mr H D McCaskey It will be devoted to the publication of articles on many branches of research, not only to tropical medicine but also into the agricultural and mineral resources of those regions The first number contains three articles on the coconut palm and its oil, one on the occurrence of *Schistosoma Japonicum* vel

Cattoi" in the Philippines and one on certain skin ulcerations in the tropics. The address is the Bureau of Science, Manila, P I

DR DANIELS writes as follows (*Journal, Malaya, B M A*) on the increase of tuberculosis in recent times —

"The distribution of tuberculosis teaches important lessons. In East and Central Africa it is practically unknown. In West Africa it exists to a slight extent, but it is a great scourge in the West Indies. Here we have ample evidence of its introduction and spread in recent times. In British Guiana there is a record of 1,500 post-mortems made in 1849. Out of these only 29 showed tubercle and none of these in natives of the colony. About fifty years later, I found that 28 per cent of the post-mortems I performed showed tubercular lesions, and the proportion was greatest in natives of the colony. In Singapore, also, tubercle has become more common and is attracting more attention recently."

An appeal to Indian vital statistics would show similar, or even a more, striking advance, but as in institutions where only there is accurate registration of disease the total death-rates are steadily falling, it seems as if the apparent increase in tuberculosis meant a real increase in accurate diagnosis. This is the view taken by the Sanitary Commissioner with the Government of India (see Report S C for 1904, p 64), and we believe it is the correct one.

A NEW Ben-ben hospital has been built at Passid Panjang, in the Straits Settlements, to isolate and to deal under the best conditions with the cases of this disease which occur among the patients in the Lunatic Asylum, the General Hospital and the prisoners in the Jail.

A new Lunatic Asylum is also being built for the Straits Settlements.

DR C W DANIELS has called attention to a root known in Malaya as "tuba root" (*desm. elliptica*). It is of great value in dealing with animal pests and has been used in Perak to destroy bed-bugs in the Jails there. It has been used as a larvicide in tanks and pools.

Reviews

Diseases of the Blood (Nothnagel's *Encyclopedia of Practical Medicine* English Edition) Edited by ALFRED STENGEL. W B Saunders & Co., Philadelphia and London, 1905.

THIS fine volume is essentially a series of monographs by well-known authors on actual diseases of the blood, and thus differs in its scope from such books as Cabot and DaCosta which treat of the changes in the blood in all kinds of diseases. The opening article on Anæmia by Ehrlich and Lazarus, however, give a

good account of clinical methods of examination of the blood and also deals at length with its morphology, the description of the different varieties of white corpuscles being especially good, as might have been expected from the amount of original work done on the subject by the authors. Among the methods of examination Haldane and Smith's way of estimating the amount of blood in the body has been added by the editor, but the modification of Gower's hæoglobinometer by the first-named writer is not mentioned. Wright's coagulometer is commended, but not described. In this part of the work we note the absence of any coloured plate of the normal corpuscles of the blood, which would have been a useful addition, while throughout the work the few coloured illustrations given of the changes in leucocythemia, etc., are not as good as in some other books on the blood. On the other hand the symptomatology and treatment is very fully given in all the sections, while a valuable bibliography is appended to each article arranged alphabetically in some and chronologically in others, but giving the more important references to English and American as well as continental literature. The article on Chlorosis by Dr K von Noorden is particularly full and complete and occupies nearly one-third of the whole volume. Dr Felix Pincus writes on lymphatic leukaemia and includes a description of Hodgekin's disease under the name pseudo-leukemia, while the concluding article on myeloid leukemia is from the pen of Dr Lazarus, who gives an excellent account of the disease within a moderate compass. Taken as a whole the volume is a valuable work of reference on the subjects with which it deals and may confidently be recommended to workers in India, where much remains to be done in elucidating the only two common severe types of anæmia and other blood diseases.

A Manual of Physiology with Practical Exercises.—By G N STEWART, M A, D E C, M D, (EDIN), D P H (CAMB), With coloured Plates and nearly 400 other Illustrations. Fifth Edition. 890 pages. Baillière, Tindall and Cox, London. Price 15s net.

THE great and much deserved success of Stewart's Manual of Physiology is shown by the list of editions and reprints since its first appearance, no less than five new editions and three reprints have been called for in the last nine years. So much praise has already been bestowed on the work by reviewers all over the English-speaking world that little remains to be said.

Professor Stewart, in this new edition, has completely revised and in many parts rewritten the subject-matter, adding considerably to the chapters on Blood, Digestion and Central Nervous System with the result that we have no hesitation in saying, that it is the very best book of its kind at present to be had for students.

and practitioners. It is thoroughly reliable and contains the very latest results of physiological research. More particularly that done in recent years on the Digestive and Central Nervous Systems.

The type in which the volume was printed in former editions has been changed to a somewhat smaller one in order to prevent an increase in bulk from the large amount of new matter included. The publishers have produced the book in the same handsome manner as before, how they can do so at the price at which the volume is offered to the public we do not know, but we do know that it is exceedingly good value.

Malaria, Influenza and Dengue. (Nothnagel Encyclopedia of Practical Medicine).—

By MANNABERG AND LEICHTENSTERN, edited with additions by RONALD ROSS, J W W STEPHENS AND A S GRUNBAUM. W B Saunders, & Co, Philadelphia and London, 1905.

THE excellence of the magnificent volumes issued under the editorship of the late Professor Nothnagel is well known, and the enterprising publishers have done the profession a great service in introducing this great series of monographs to English-speaking medical men.

We have already very favourably noticed many previous volumes in this series, and we naturally opened a volume on Malaria with considerable interest. It is a magnificent account of Malaria up to the date it was written by Mannaberg, and is a positive mine of information and knowledge. The subject of Malaria, however, as we well know in India, is in a transition state and consequently a book which was up-to-date seven years ago is in need of much revision to-day. The names of Ronald Ross, Stephens, and Grunbaum, all now belonging to the energetic Liverpool School of Tropical Medicine, are a guarantee that a volume from their hands will contain all that is known up to the day of the writing of the book, more than this no editors could do.

It will be gathered from these remarks that the account of Malaria and especially of the malarial chronic fevers and states, so long attributed to malaria, are not dealt with in view of the most recent research. The exact significance of the Leishman-Donovan bodies is not yet fully known, hence accounts of "malarial cachexia" as here given cannot altogether be relied on as the latest views on the subject.

In spite of this, which is inevitable, this magnificent volume is a veritable treasure-house of malarial lore, the history of the disease, its geographic distribution, and its etiology is most completely dealt with. The sections on the biology of the various types of the parasite, on the influence of race, on immunity and on malarial epidemics are admirable summaries of the knowledge which existed when the book was written.

The new chapter on Malaria in relation to the mosquito by Dr J W W Stephens, running to

close on 100 pages, is a masterly resume of the subject and one of great value. The other chapters on symptomatology, classification, perniciousness, relapses, re-infections, "chronic malarial infection," malarial cachexia, complications and sequelæ are all good, as are also the sections on pathology, diagnosis, and treatment. In fine the volume is a very complete account of Malaria up to the date at which Mannaberg wrote it.

The account of Influenza in this volume runs to about 180 pages and will be regarded as a very complete account of this protean disease. It is by Dr Leichtenstein, as is also the admirable account given of Dengue.

We look forward to a second edition of this great volume, when we have got to clearer ideas on the extent of the prevalence of Leishman-Donovan infection, and on the nature of the chronic fevers so often attributed to Malaria. This will mean the re-writing of much in the present volume, which, however, as a record of the knowledge of its day, is of permanent interest and value.

The Treatment of Fractures.—By CHARLES LOCKE SCUDDER, M.D., Surgeon to the Massachusetts General Hospital. 5th Edition, 1905. W B Saunders & Co, Philadelphia and London, 1905.

THIS work which in the present edition has been revised and brought up to date now forms a comprehensive guide to the treatment of fractures by modern methods. There are short chapters on the more common dislocations, on the use of the Röntgen Rays and on gunshot wounds. Attention is also drawn to the ambulatory treatment of fractures, though the author clearly states its disadvantages and wisely declines to recommend it, except in very special cases.

The work is very profusely illustrated with reproductions of Röntgen Rays and ordinary photographs, and also of line drawings and diagrams. It cannot fail to be useful to the practitioner as a work for ready reference.

The Food Factor in Disease.—By FRANCIS HARE, M.D. Longmans Green & Co, London, 1905. 2 vols. med 8vo. Price, 30s. net.

THIS is a remarkable book. It is one which it is not easy to adequately review in the space available in these columns.

The scope of the volumes before us is indicated in the sub-title of the book, which runs as follows:—"An investigation into the humoral causation, meaning, mechanism, and rational treatment, preventive and curative of the paroxysmal neuroses (migraine, asthma, angina pectoris, epilepsy, &c), bilious attacks, gout, catarrhal and other affections, high blood pressure, circulatory, renal and other degenerations."

The author is well known as recently Inspector-General of Hospitals in Queensland, and late Consulting Physician to the General Hospital, Brisbane. Some years ago we very favourably

reviewed his book on the cold bath treatment of typhoid fever, which is a classic work on that subject

As regards the present work, an endeavour must be made to indicate to our reader the central theory or thesis on which it is built up. The author believes that many common but obscure disorders depend upon errors of carbonaceous metabolism. The argument is in the main deductive, not inductive, and the main hypothesis having been stated, it is applied to every phase of disease and shown to explain or be explained by all of them.

Many years ago our author met a patient suffering from severe headaches and increasing corpulence. Dr. Hare put him on a diet which largely excluded fats, carbohydrates and saccharine alcoholic drink, and threw the onus of nutrition largely upon proteids. The headaches ceased and the weight fell. This and many similar cases, set our author to think. It was inevitable to conclude that the migraine was a food disease.

Our author now elaborates the theory and provisionally adopts the hypothesis that "carbonaceous material might, in certain circumstances, accumulate in the blood to an ultra-physiological degree, such accumulation constituting a primary cause of pathological action." He applies the term "hyperpyræmia" to this hypothetical state, which implies a condition in which the contained fuel, or carbonaceous matter, whatever its exact chemical composition, is in excess of the capacity of the organ to dispose of it physiologically.

This theory of hyperpyræmia (Greek, *Pureia*, fuel), or "over-stoking" as we may translate it, was then applied, and found to correlate and explain a large number of isolated clinical observations, otherwise inexplicable or at any rate not explained.

In fact, to compare small things with great, this hypothesis of hyperpyræmia is like Darwin's hypothesis of the action of natural selection in the evolution of species. The more it is applied to morbid conditions, the more it is found to explain them. We may add, however, that no attempt is made to prove this hyperpyræmia as a chemical fact, it is an hypothesis only.

We cannot attempt here to follow our author in the sustained and logical argument he keeps up from chapter to chapter. The reader is advised, however, to do so.

In this practical world the medical reader is tempted to ask how this factor of hyperpyræmia is to be encountered, and information on the subject is given in section 942 and following pages (Vol II, p 375, etc.) Dr. Hare believes that the quantity of proteid necessary for the maintenance of high functional activity, varies much with the individual and his ways of life. Speaking generally, he regards the quantities of proteids set down in standard dietaries as on the

average inadequate, and in the case of dwellers in the tropics often "manifestly inadequate." He considers that there is little danger of damage from a moderate nitrogenous excess, *provided* (the italics are his) *that carbonaceous excess is precluded*.

We commend this chapter to our readers, no mere summary of it will suffice. This should be read in conjunction with the 85 clinical cases quoted in the appendix. These are extremely valuable and will give the practitioner a better idea of Dr. Hare's views and of the class of case benefited by a restriction of the carbonaceous input than any remarks of ours.

In conclusion we can commend this book to the attention of our thoughtful readers. It is not a book to be skimmed, but if one spent the reading leisure of a week in reading and digesting this book we believe the time would have been well spent and the benefit to the practitioner far from inconsiderable.

Addresses and other Papers—By WILLIAM W. KEEN, M.D., LL.D., F.R.C.S. (Hon.) Professor of Surgery, Jefferson Medical College, Philadelphia, etc. Illustrated. W. B. Saunders & Co., Philadelphia and London.

Professor Keen has placed the profession and the public generally under a great obligation by the publication of his addresses and papers in book-form. They are twenty-five in number and cover a very wide range of subjects, while some of them are more particularly interesting to Americans, they are one and all extremely well-written and of the greatest interest to those who have a taste for the literature of the medical profession and for the history of the evolution of medical knowledge.

The first paper "The Early History of Practical Anatomy" is one of the best and gives the reader a fair insight into the depth of the author's knowledge and learning. It is profusely illustrated, one illustration from Ruysch's cabinet being particularly good. Some of the stories told of the methods adopted for obtaining subjects for dissection, remind one of those heard in childhood when mothers used to frighten their children with the threat of "body-snatchers."

Two of the papers are of special interest affording a complete answer, if any were required, to the misrepresentations and misstatements of the antivivisectionists. These are—The address at the commencement of the women's Medical College entitled "Our Debts to Vivisection." The other is a reprint from an article in *Harper's Magazine*—"Vivisection and Brain Surgery." It will suffice to quote two extracts from two of the other papers bearing on this subject to show Dr. Keen's views. The first, from the semi-centennial address in surgery—is "Bacteriology would not now exist as a science, nor would accurate modern surgery and a large part of modern medicine be possible, had

experiments on animals been prohibited, as some zoophilous men and women who love dogs better than men and women and even little children, desire."

The other from a paper dealing with the progress of surgery in the *Nineteenth Century* is—"He who restricts, and still more, he who would abolish our present experiments on animals is, in my opinion, the worst foe to the human race, and to animals as well, for they, as well as human beings, obtain the benefits derived from the methods. He may prate of his humanity, but he is the most cruel man alive."

Many of the other addresses and papers are equally good, and we can heartily recommend the book to all members of the profession and laity as an exceedingly interesting and instructive compilation—the perusal of which, we can guarantee, will give them both pleasure and profit.

The publishers—W B Saunders & Co—have done their work in such a way that the book forms a very handsome addition to one's library.

The Conjunctiva in Health and Disease—

Being a Record of some Research Work—By N BISHOP HARMAN, M A, M B (CANTAB) F R C S (ENG), Ophthalmic Surgeon to the Belgrave Hospital for Children, Chief Clinical Assistant, The Royal London Ophthalmic Hospital (Moorfields), &c, &c With 43 illustrations Pages XVII—276 Baillière, Tindall & Cox London, 1950 Demy 8vo Price 10s 6d net

THIS work is the result of series of observations on the condition of the conjunctiva in health and disease, including complete bacteriological examinations in 400 subjects. The headings of some of the twenty chapters into which the book is divided will give some idea of its scope, as no detailed review of a work of this special nature is called for in the *Indian Medical Gazette*. In the *historical* chapter, full justice is done to the old masters, whose work is the foundation of our present knowledge—especially to John Vetch, Assistant-Surgeon, 54th Foot (whose work on ophthalmia published in 1807 was epoch-making), general anatomy, sociological enquiry, working out the incidence of disease as affected by age, season of the year and by the social status of the subject, causes of blindness, bacteriology, simple and purulent conjunctivitis, angular conjunctivitis, tuberculosis, the lymph follicles of the conjunctiva, trachoma and its treatment, phlyctenar conjunctivitis, spring catarrh, and xerosis. Justice is done to Major Herbert's researches in spring catarrh and pterygium. The book has a complete bibliography and index occupying thirty-one pages.

Many useful hints are given on the treatment of the various conditions dealt with, and the work can be strongly recommended to students of ophthalmology as containing all that is known up to date regarding the pathology, diagnosis and treatment of conjunctival diseases.

Dental Surgery for Medical Practitioners and Students.—By A W BARRET, M B, L D S (ENG) Fourth Edition Pages XII and 159 H K Lewis, London, 1905 Price 3s 6d

THIS little book, which has now reached its fourth edition, is based upon the teachings of its author to medical students attending the London Dental Hospital. The aim throughout has been to give such information on dental matters as may be of practical use to the medical practitioner.

It is very clearly written, well illustrated, and can be strongly recommended to the Civil Surgeon in India, who has, perforce, to treat many cases of dental trouble. The chapters on dental caries, and on artificial teeth struck us as being particularly useful and practical. The portion dealing with teeth extraction and the management of stumps is certainly good.

The little book is well printed with numerous excellent illustrations, and its price is only 3s 6d.

Congenital Dislocation of the Hip.—By J JACKSON CLARKE Second Edition The Practitioner, Ltd Strand, W C. Price 1s 6d net

THIS small pamphlet contains a description of Lorenz's method of treating congenital dislocations of the hip. The clinical features and anatomical condition of the joint are first discussed and afterwards the method of replacement of the head of the femur into the acetabulum and the after-treatment, with results. The accounts of the manipulative procedure and the after-treatment is clear and concise. There are many good photographs and skiagrams illustrating the condition before and after reduction. The author states that it is impossible for any surgeon, who has neither worked with Lorenz nor with some one who has learned directly from him, to carry out the treatment correctly in all its details. This certainly seems a sweeping statement.

Current Literature

I

MILITARY HYGIENE

THE following is the Report by Lieutenant-Colonel L A WADDELL, I M S, O B, C I E, L D, on the medical arrangements of the Tibet Mission Force 1903-1904—

(a) *Medical Personnel*—The *Medical Strength* was thirty medical officers, of whom four were of the Royal Army Medical Corps and twenty-six of the Indian Medical Service, with eight Assistant Surgeons and sixty-seven Hospital Assistants.

The *Field Hospitals* numbered two sections of British and ten of native, namely, Nos $\frac{D}{11}$ and $\frac{A}{7}$ British, and $\frac{B}{12}$, $\frac{C}{10}$, $\frac{D}{11}$, $\frac{A B C D}{11}$ and $\frac{B C D}{10}$ Native.

Two *Native General Hospitals* were established, one of 200 beds at Gangtok for the feverish season and afterwards at Siliguri, and the other of 100 beds at Alipur. For British troops the station hospital at Lebong (Darjeeling) was used as a British Base Hospital.

No medical store depôt was required, as Calcutta was so near to Siliguri by rail, and the Native General Hospital at Gangtok kept a stock of medicines

(b) *Physical Geography and Medical Topography of the Country*—The Force marched from the Indian plains at the railway terminus of Siliguri (310 feet only above the sea level), up across the Sikkim and Chumbi Himalayas to the centre of Tibet. The track at first led through the submontane sal forest to the gorge of the Teesta River, and up that malarial gorge through slate and shale formation for about fifty miles to Upper Sikkim. Thence it zigzagged steeply up through gneiss and granite into temperate and alpine forest and out on to the bare rocky uplands above Gnatong and Changu, where the track crossed a high southern spur of the Himalayas by the Jelep or Nathu passes, 14,390 feet and 14,300 feet respectively, above the sea-level, and descended over 4,000 feet into the valley of Chumbi, in the outer Himalayas, to the east of Sikkim and bordering Bhutan. From Chumbi (9,700 feet) the track ascended the pine clad valley of the Mo River to the bare shingly plain of Phari (14,500 feet) swept by icy dust storms, thence it crossed the main axis of the Himalayas by the Tang pass (15,200 feet) on the flanks of Mount Chumolhari to the great plateau at Tuna (14,900 feet) where, and in the Upper Chumbi Valley, the greater part of the force spent the winter.

In the early spring, at the end of March, the Force continued its advance to Gyantse, passing down Tuna Guru plain, past the lakes of Rham and Kala and through the Zamdang defiles to the broad flat bottomed cultivated valley of Gyantse, an offshoot of the Tsangpo valley of Western Tibet, at an elevation of 13,200 feet.

The advance to Lhasa, after the storming of the Gyantse Jong on July 6th, led up the north eastern branch of the valley, up the Neru River to Gabshi, thence through a series of defiles to the glacier lined Karo pass (16,500 feet) beyond which the track descended into the basin of the great land locked Yamdook Lake (about 15,000 feet). Proceeding along the shore of this lake for about twenty miles, the track climbed over the mountain ridge, separating the lake basin from the Tsangpo valley by the Khamba and Dok passes (16,500 and 16,700 feet respectively), and descended to the Tsangpo River at the iron bridge ferry or Chaksam (12,100 feet), where on both sides of the river were luxuriant fields with several large walnut and other trees. On crossing the Tsangpo, the path led up the bank of its tributary, the Kyi River, for forty miles to Lhasa, through several bold defiles of limestone rock, banded by granite.

Lhasa itself is situated on the right bank of the Kyi River on a marshy, partially cultivated plain encircled by bare rocky hills rising to a height of 3,000 feet or more above the plain, which here was about 12,300 feet above sea-level. The troops were encamped on a gravelly part of the plain about a mile to the north of the city.

(c) *Its Vegetable and Animal Products*—The chief vegetable products in Western and Central Tibet are barley, wheat, oats, peas, mustard, potatoes, turnips, radishes, cabbage, onions and other vegetables, and a few walnuts and peaches. Aconite (*A. ferox*) also occurs wild throughout the valleys. The chief animal products are wool, yak-tail, fly whisks, furs, sheep and sturdy ponies and mules. The wild asses which roam over the plains are not utilised.

In the Chumbi Valley the hardy cereals, wheat, barley and peas, are cultivated only for local requirements. Wild madder is exported in bales. A few herds of the great stag or Shao inhabit the upper forests of this valley.

(d) *Climatic Peculiarities*—The climates to which the Force was exposed were unprecedented in their rigour and range. They extended from the tropical climate of the Terai and Lower Teesta gorge to the arctic cold of the great passes and the inclement Tibetan winter, combined with the trying effects of the rarified

air of these immense altitudes on the respiration and heart. The cold frequently was positively painful, especially when the wind blew. The lowest temperature recorded during the winter was on the Tang pass on the night of January 7th, when the thermometer registered minus 26° F, or 58° F below the freezing point. In December and the early part of January, until the bitter dust-storms set fully in, the Lower Chumbi Valley had fairly bright and cloudless skies during the day, although during the nights the temperature fell to 20° of frost. The garrisons at Phari and Tuna, and the convoys which daily crossed the passes, led a miserable existence all winter tormented by the cold and icy wind and altitude. At the end of January chill fogs swept up the valleys, resolving themselves into drizzling sleet in the lower valleys, and clogging snow and blizzards in the upper valleys and passes. With March milder weather set in with frequent slight falls of snow and a marked rise of temperature in the sunshine. At Gyantse snow fell during every month of summer. The rain fall was very considerable. At Gyantse and Lhasa about thirty inches must have fallen during the summer and autumn. Partial statistics for Chumbi and Gyantse are given in Appendix I. The lower line of communication in the Teesta gorge was closed during the most malarial season of the year, in mid summer and autumn, and the traffic sent by way of the Ghoom Station of Darjeeling and Kalimpong.

(e) *Principal Diseases with their Causes*—The general health of the troops has been very good, despite the great vicissitudes of climate to which the men have been exposed, and the great altitudes at which the operations have been carried on. The greater portion of the sickness and deaths was attributable to the climate. The total number of deaths and men invalided up to September 30th, 1904, excluding war casualties, were 411 and 671, respectively, and of these 202 and 405 were due to the climatic conditions—

	British Troops	Native Troops	Followers.	Totals
Total deaths excluding war casualties	4	102	305	411
Deaths due to climate	4	60	138	202
Invaliding, exclusive of war casualties	44	192	435	671
Invaliding due to climate	29	149	227	405

There was only one case of scurvy, notwithstanding the frequent absence of fresh vegetables, the large ration of fresh meat doubtless contributed to this happy result.

Amongst *British troops* the principal diseases were diarrhoea, bronchitis, rheumatism, remittent, and enteric fevers. The causation of these were, respectively, indigestible or insufficiently cooked food, cold and chill, malaria and heat of sun. The source of the enteric infection was not traceable. Except a few non-commissioned officers and men of departments the British troops were not exposed to the rigours of the Tibetan winter, having come up from India in May.

Native troops suffered most severely from intermittent fever. After this came bronchitis and pneumonia, then dysentery, diarrhoea, rheumatism and frost-bite. Dilatation of the heart was not infrequent. Venereal disease was uncommon in Tibet proper, but fairly prevalent in Sikkim and in the lower Chumbi Valley. A mild epidemic of mumps occurred in the summer, and some cholera in the lower Teesta valley. Snow blindness, owing to the general use of goggles, was very rare and mild, until the return march when snowbound at Phari in October, when about 200 cases occurred. The cause of the intermittent fever was doubtless brought from India, as the disease occurred chiefly about 2,000 feet, after a chill, though in many cases it may have been contracted in passing through the malarial Terai.

and lower gorges, despite the prophylactic issue of quinine. Further particulars regarding this continued and intermittent fever, as well as the cholera and enteric epidemics, are detailed in the Sanitary Report.

Diarrhoea and dysentery were largely due to the difficulty of cooking food, owing to the lowering of the boiling point by the lessened atmospheric pressure of the high altitude, the scarcity of fuel and the rapid radiation in the excessive cold. Pneumonia and bronchitis were due chiefly to exposure to the cold and high altitudes. They were especially common at Phari in the winter months, where the barracks were badly ventilated and filthy, and the acrid smoke of the argol fires irritated the respiratory passages. At Tuna pneumonia was mostly confined to those sentries who were exposed to the excessive night cold. Frost bite scarcely occurred until the first heavy fall of snow, although the actual cold then was less than previously, and most of the cases were complicated if not in part caused, by burns, through placing the frozen limbs too close to a fire. The mumps epidemic commenced amongst the Nepalese coolies and spread thence to the Gurkhas mainly.*

Followers suffered chiefly from intermittent fever, diarrhoea and dysentery, bronchitis and pneumonia, from the same causes as native troops. They also had a good deal of debility, apparently from impoverished blood and continued work at high altitudes.

An attempt was made to ascertain whether the increased frequency of breathing in these high altitudes produced any expansion of the chest. Men of the 40th Pathans and 19th Punjab from the Punjab plains had their chests measured before entering the hills and again after a residence of five months in high altitudes. The result showed a slight increase in chest capacity. Some observations were also made on the effect of altitude on the corpuscles and hæmoglobin of the blood.

(f) *Wounds—Description and General Treatment Adopted*—There were 161 killed and wounded in action—

	British Troops	Native Troops	Followers	Totals
Killed in action	1	21	5	30
Died of wounds received in action		16	2	18
Non fatal wounds	20	91	2	113
Other war casualties, explosions, drowning, &c	11	22		33
Of latter, died	4	10		14

The variety of the wounds met with calls for remark, as the Tibetans were armed with weapons from the most primitive to the most modern.

Sword-cuts were numerous and all healed well, in some cases with wonderful rapidity. Contusions from stones were not uncommon, mostly severe lacerated contusions of the scalp. The wounds caused by the Lhasa made Martini pattern rifles with their large bore (about 550) were invariably severe, and often shattered bones extensively, the bullet emerging by a very large exit wound. In fact, the result was akin to that of an explosive bullet. Wounds caused by the smaller smooth bore matchlocks generally became very septic, especially when the bullets lodged, as they were generally wrapped in dirty cloth or tow to make them fit the bore of the musket. Again, the wounds caused by the balls of the large "jingals" in Gyan-tse

Jong, varying from 4 oz to nearly 4 lb in weight caused terrible wounds, which were generally rapidly fatal from shock. As was to be expected, such wounds as were due to modern small bore high velocity rifles healed quickly and without trouble. The general treatment adopted was the application of a "First Field Dressing," which was not removed for several days if no discharge showed through, and no excessive pain or fever occurred. In this connection it is to be noted that the application of the waterproof jaconet of the new first field dressings over the pad of gauze, as directed seems a mistake, as it tends to keep the wound moist and so acts as a poultice, whereas the drier simple wounds are kept the more rapidly they heal. Suppurating and complicated wounds were treated on the usual antiseptic principles.

The wounded Tibetans were treated by our surgeons in tents or huts near our posts.

An application for an X-ray apparatus was not complied with, with the result that three cases had to be sent back to India with their bullets unremoved.

(g) *General Working of the Medical Service in the Field*—At the railway base at Siliguri, a section of a field hospital was established as a base hospital, which when the force became increased, was replaced by a general hospital. The latter was located at Gangtok (5,000 feet) for the rains, and afterwards moved to Siliguri, whilst a second native general hospital at Alipur received the invalids at the railway terminus in Calcutta, and despatched them to their stations in India.

As the force advanced a section of a field hospital was established at each chief post along the long line of communications, and at each of the smaller intervening posts a hospital assistant with a pair of panniers and hospital comforts was left. Needless additional difficulty and delay were experienced in establishing these sections, owing to the first field hospital having been issued as an indivisible unit without the extra establishment and tentage necessary for forming independent sections.

At these posts along the communications, hospital huts were built on a standard plan for the protection of the local sick and sick convoys against the cold and snow of the upper tracts and the rain of the lower valleys.

The unusual difficulties of transport over such lofty hill-tracks compelled a reduction in the weight of the equipment of the field hospitals. This was reduced by one-fourth its weight (as detailed in the departmental report) by eliminating non-essential articles, with a gain in efficiency, it can be said, after this reduced scale has stood the test of a year's constant strain.

The unprecedented physical difficulties of transport over the steep mountain tracks and in such high altitudes, necessitated several modifications in the ambulance for the transport of the sick. As the Indian *Lahars* were manifestly unsuited for this work, and had proved on the Khamba Jong line almost incapable of carrying a loaded *dooly* above 8,000 feet amongst the hills, they were replaced by several hundred hardy Tibetan and Sikkimese *dandywalas* from Darjeeling temporarily enlisted for this purpose. These were quite undisciplined, and had to be trained to their duties. The Sikkimese proved a failure, nearly all of them deserting after the first few days. The Tibetans, on the other hand, were an undoubted success on the whole, for, although about 70 per cent of them deserted within the first few months through fear of our defeat by their kinsmen, those who remained and a batch of Garhwali recruited at Naini Tal, did practically all the carrying of sick and wounded in the fighting force at the front. I have accordingly suggested in the departmental report that a few of these Tibetan and Garhwali *dandywalas* should be permanently enlisted in the Army Bearer Corps for service in Jalapahar and Lebong, and in the Naini Tal, Chakrata and Lansdowne station or regimental hospitals, where they could be properly

* We have been obliged to omit two interesting charts of the mean and minimum temperatures, compiled by Captain T. B. Kelly, I.M.S. The mean temperature varied from 29° F in February to 101° in July. The minimum recorded was minus-26° F en route to Tuna on 7th January.—ED, I.M.G.

trained, and form a nucleus for a larger cadre for employment in hill warfare

The form of the regulation *dooly* and stretcher proved most unsuitable for work in these hilly regions. The ordinary regulation *dooly* was so heavy and cumbersome that it could not be carried even in an empty state up many of the steep tracks, but had to be unshipped and carried up in pieces, and at sharp turns and zigzags it was positively dangerous to its occupant and bearers. It was thus practically useless for continuous transport in the hills and too heavy for transport on the high plateaus. Two Amesbury *doolies* were tried experimentally, and proved to be a vast improvement over the ordinary *dooly*, in lightness, manageability and handiness, and comfort for the patient. A few suggestions for the further improvement of the Amesbury are detailed in the departmental report.

Blanket stretchers were also found to be quite useless for steep hill transport, and dangerous to the patient, as no manner of tying him in could prevent his slipping out.

For the steeper passes several ambulance chairs were constructed by Lieutenant Colonel Waddell, R.M.S., to be carried on men's backs on the framework, on which the Tibetans are accustomed to carry their own loads, and they proved of service.

Latterly the hammock devised by Major A. R. Aldridge, R.A.M.C., was used with much success. It weighs, with its two poles and canvas cover, about 24 lbs., with one pole only, 15 lbs. It is peculiarly well suited for narrow zigzag hill paths, and holds the man securely against falling out even on the worst ground. During the present campaign four of these hammocks have been regularly used for nearly four months with the sick convoys proceeding every eight or ten days between Chumbi and Gantok, a distance of forty miles, including the Nathu and minor passes, and have latterly been the only means of transferring helpless patients over this difficult part of the line of communications. This Aldridge hammock should certainly replace the blanket stretcher used by regiments for hill warfare.

Hathaway's crutch support for riding saddles was tried extensively and found useful, its obvious defects and their remedy are detailed in the special departmental report.

Ellas were used as sick transport on the Phari-Kangma Plain, to eke out other ambulance, and on the Teesta cart road from Rangpo to Siliguri ran ambulance bullock *tongas*. The great length of the communications, extending for over 300 miles from the base across such difficult country, with numerous posts, absorbed such a large number of the field hospitals, that not more than one section per battalion, and usually less, was available for the fighting forces, and this proved sufficient.

On the advance to Lhasa two sections of field hospitals were fixed at Gyantse as an advance base, and their ambulance utilised for convoys of sick along the Lhasa road.

The Principal Medical Officer was able to inspect all the posts along the line of communications at least once, and most of them several times, but when the Lhasa column advanced, and was for a time practically cut off from immediate communications with the lower line, a senior medical officer was appointed for the lines of communications.

Altogether the medical service in the field worked very well under an exceptionally severe and prolonged strain, which was trying to all.

(h) *Rations*—The rations issued to native troops and followers were not always of good quality. Of a consignment of sixty tins (30 lb in each) of atta, all of the nine which I examined were quite unfit for food, containing large numbers of maggots and weevils. In a considerable number of other cases atta, rice, and ghee were found to be decomposed or attacked by moulds or insects.

A more rigid inspection by a competent officer of these rations before despatch would have avoided both the waste of transport and in some cases the issue of food which was unfit for consumption.

The locally procured Bhutia rice was of very poor quality, containing much husk and earth, and likely to predispose those eating it to bowel complaints, which were very prevalent. "Sampa"—parched barley ground into flour—obtained locally, was issued to some extent instead of atta or rice, it was not liked by the men, chiefly on account of the difficulty of making chupatties from it, owing to the small proportion of gluten. When taken in the form of porridge it seems a nutritious food. The low boiling point of water at the high altitudes reached, necessitates prolonged boiling of food to render it fit for eating. In the case of cereals, and particularly of dhall and peas the temperatures (about 87° C at 15,000 feet) are scarcely sufficient to soften the envelopes of the starch grains. The allowance of wood was not sufficient for this, and when not locally procurable by the troops an increase of the allowance would have been very desirable.

Potato chips require such prolonged soaking that they are of little use on the march. The following were the scales of rations issued—

Rations for British Troops

Bread	1½ lb	daily
Fresh meat (inclusive of bone)	1½ lb	"
Fresh vegetables—		
Potatoes, 12 oz		
Mixed vegetables, 4 oz	1 lb	"
Rice	2 oz	3 times a week
Tea	1 oz	daily
Sugar	2½ oz	"
Salt	½ oz	"
Fuel	3 lb	"
Pepper	½ oz	"
Jam	1 tin	"

In lieu of 1 lb of fresh vegetables the following can be issued—

Potato chips	3 oz.	daily
Pickles	1 oz	"
Pickle vinegar	½ oz	"

Rations for Native Troops and Followers

Atta or rice	1½ lb	daily
Dhall	4 oz	"
Ghi	2 oz	"
Goor	1 oz	"
Salt	½ oz	"
Tea	½ oz	"
Chillies	½ oz	"
Turmeric	½ oz	"
Garlic	½ oz	"
Ginger	½ oz	"
Fuel (to extent locally procurable)	1½ lb	"
Meat (mutton or goat inclusive of bone)	28 oz	weekly

Atta eating men will have the option of drawing ½ lb rice instead of a similar quantity of atta, and vice versa.

Rations for Darjeeling Coolie Corps

Rice	2 lb	daily
Dhall	8 oz	"
Ghi	2 oz	"
Salt	1 oz	"

Rations for Tibetan Dandy Bearers

Rice	1½ lb	daily
Meat or	1 lb	"
Dhall (in lieu of meat)	8 oz	"
Ghi	2 oz	"
Salt	1½ oz	"

(i) *Spirits and Malt Liquors*—An issue of rum, 1 oz, or tea, ½ oz, and goor 1 oz in lieu, was made occasionally during particularly inclement weather to units employed on road-making or other hard work.

(j) *Medical Comforts for the Sick*—These were, with one exception, of good quality, but of one particular brand of condensed milk between 70 and 80 per cent were bad.

(k) *Clothing*—The scales of clothing issued were liberal and well devised, and in spite of the fact that a considerable number of cases of frost bite occurred, it is difficult to see how they could have been much improved on.

It is, perhaps, questionable whether the benefits obtained from the Gilgit boots were sufficient to compensate for the extra bulk and weight to be carried. They are useless in wet weather, and many of the men never wore them at all.

More frequently renewals of socks would have been of advantage, as they became worn out very quickly.

Some of the waterproof sheets were of poor quality, and after short use allowed moisture to pass through them.

Khaki serge would have been more suitable to the climate than drill.

The following were the scale—

Ordinary Scale for British and Native Troops and followers—

Blankets, barrack	2
Coat, warm	1
Mittens	1 pair
Balaclava cap	1
Waterproof sheet	1

Special Scale for British and Native Troops and followers for Winter Months only

Poshteen	1
Razai	1
Woollen gloves	1 pair
Fur lined gloves	1 "
Lamb's wool vest	1
Overalls	1 pair
Comforter	1
Gilgit boots	1 pair
Goggles	1 "

N B—One extra blanket and one pair of woollen drawers were also issued.

Nepalese and Tibetan Scale

Coat, warm, followers'	1
Jersey	1
Pyjamas	1 pair
Blankets, country	2
Waterproof sheet	1
Balaclava cap	1
Boots, followers'	1 pair

(l) *Sanitary Condition of Camps, Latrines, and Transport Lines*—The maintenance of satisfactory sanitary conditions in standing camps, occupied for several months by small bodies of troops, sufficient only for guards and escort, and large numbers of transport drivers and followers employed daily with transport duties, must necessarily be a matter of some difficulty.

The difficulties in the present case have been considerably increased, in many of the camps, by the heavy rainfall.

A system of pail latrines was used by the hospitals, the contents of the pails being buried at a distance from camp, or, if from infective cases, burnt.

Trench latrines were used by troops and followers, but scarcity of labour for a time at certain camps, led to the digging of trenches being neglected, and a very foul condition of the land round the camps resulted.

The proper disposal of litter, either by burial or burning, does not seem to be accepted by transport units as part of their duties.

If done regularly the amount of labour involved is not great, but when large accumulations have been allowed to collect, as happened at several camps, its disposal in rainy weather is not easy.

In certain camps this was undoubtedly largely responsible for the enormous number of flies which accumulated, and which are a recognised means of spreading certain diseases particularly prevalent in camps.

Conservancy Establishments—The conservancy establishments of regiments and of field and general hospitals were sufficient, but the various transport units, mule, bullock, and coolie corps, were not provided with any conservancy establishments.

A certain number of sweepers were provided for general duties at the standing camps, including the small hospitals under hospital assistants which were improvised at posts where there were no field hospitals. At several camps these were not sufficient for the purpose, and in some cases the local supply and transport store-keepers seemed to be under the impression that these men were intended only for duty in their stores. As it required some weeks for sweepers obtained from India to reach the further posts, the sanitary condition of the camps suffered in consequence. I think a sufficient establishment of sweepers should be attached to all transport units.

WASTAGE* IN OFFICERS AND MEN OF THE TIBET MISSION FORCE

European Officers of British and Native Regiments

Period	Average strength for the period	Admissions	Deaths †	Invalids	Killed in action
From November 14th, 1903, to December 31st, 1904	77	49 519.5	2 25.97		4
Ratio per 1,000	89	40	2		
Average annual strength		449.4	22.47		
Ratio per 1,000					
<i>British Troops</i>					
From January 1st, 1904, to November 14th, 1904	285	181 635.1	3 10.53		
Ratio per 1,000	242	181	3		
Average annual strength		717.9	12.40		
Ratio per 1,000					
<i>Native Troops</i>					
From March 13th, 1903, to December 31st, 1904	2,024	3,036 1,500.0	120 50.29	31 16.80	34
Ratio per 1,000	3,627	3,036	120	34	
Average annual strength		837.1	33.00	9.37	
Ratio per 1,000					

* As supplied by Principal Medical Officer, His Majesty's Forces in India, to Intelligence Branch, Army Headquarters.

† Excluding killed in action.

Correspondence.

REMITTENT FEVER

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I notice in Major Leonard Rogers' interesting paper on malaria that he makes the following statement "It appears that any remittent fever of over 4 days' duration is almost certainly not malarial in nature." This may be quite true of the fevers he was dealing with in Calcutta, but it would certainly be very misleading in other places. I have unfortunately only too much reason to know this in my own person. I got malaria first in Quetta in 1878 and my attacks followed the description of ague in the books in the most minute way. In the course of a few months they ceased to be intermittent and became remittent lasting usually three to five days in a low form. After repeated fresh infections the remittent character became more and more established, and in 1887 I had an attack that lasted over three weeks. In 1888, I had an attack that lasted ten days. In 1897 after fresh infection I had a low remittent varied with days of high fever and an occasional day off, and in following May at home I had an attack that lasted three weeks. Finally in 1903, after fresh infection in Barrackpore or Sikkim, I had an attack that lasted ten days. In this for the first time my blood could be examined, and it was found to be 'swarming with crescents and pigment."

AMBALA,
9th March, 1906 }

H HAMILTON,
Colonel, I M S

XYLOL IN SMALL-POX

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—By coincidence I happened to read in the February Number of the *Practitioner* a small paragraph on "Xylol in Small pox" the same day that the small pox rash declared itself in a sepoy under observation. Having xylol by me I at once started treatment with it.

The doses given were 1st day 10 mms, 2nd day 45 mms in three doses, 3rd to 6th days, 60 mms daily in three doses. Each dose was given in milk, and at no time was there the slightest symptom observable due to the xylol.

The result was as follows. On the second day of the xylol treatment, when 45 mms were administered, the rash was fully pustular. On the next day the pustules were nearly all dried up, and the following day found every trace of pustule disappeared.

The sepoy bears four good vaccination marks (evidently of childhood) and a failed revaccination in 1899. The case was severe, the rash being very dense, chiefly discrete, though in several places confluent.

The case will be discharged in a few days now and will go out with no pox marks on his face at all.

It is true that this is the result of one case only, but the result is so extremely encouraging that it seems worthwhile asking others to try the same treatment, and it appears that most of us will have ample opportunities this year.

The drug (?) is not expensive and as Behn and Salomon in France were able to reduce their case mortality from 37% to 12.34%, a trial is well worthwhile in this country.

Possibly this method of treatment is much used in India, if such is the case I must beg you to pardon me troubling you with this letter and must give the excuse of an out of the way station and consequent isolation as my excuse.

I have recently had a case under my treatment that seems to show that Quinine Hydrochlorate is next to useless as a prophylactic against malaria.

The case occurred in a British officer. Roughly his history with regard to malaria is as follows. With his British Regiment in the Madras Command he had a very bad go of malaria. In a year's time he had another bad go in Peshawar, and lastly after another two years he had one or two slight goes whilst with me in Chakdara, and in which I found the parasite. He went home in March 1904, and whilst at home had "Fever" and consulted Sir Patrick Manson. His advice was to take Quinine Hydrochlorate "as it was the more soluble salt." This he started taking in the beginning of 1905, and took 15 grs each day on the 10th, 11th, 20th, 21st, 30th and 31st of each month. He continued taking these doses till 11th February and then stopped for some reason.

On the 21st February he had a typical attack of malaria fever. I gave no medicine, and on the 23rd I took blood films and found as good rossetes as I have ever seen and counted ten in two minutes using a mechanical stage. No other cases have occurred.

Have other people found this preparation as equally inefficient?

Yours truly

S H LEE ABBOTT, M B (LOND),

Captain, I M S

NOWGONG,
12th March, 1906.

LITHOLAPAXY AT HYDERABAD, SIND

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The results of the past year's litholapaxy operations in the Civil Hospital, Hyderabad, Sind, may be of interest to your readers. During the year 1905, there were performed 521 operations of pure litholapaxy.

The Stones varied greatly in size, weighing, when thoroughly dried, from 6 ozs 5 drs (the largest) to a few grains only.

The ages of the patients also varied largely from babies of a few months old, to men of advanced age.

The total number of fatalities in these 521 operations was five giving the low death rate of, not quite, 96 per cent. Of these five fatalities, one could hardly be properly considered to be due to the operation, as it occurred in an old and feeble man, whose heart suddenly failed under chloroform anaesthesia, before the operation had been commenced.

These cases were in no way selected, and were operated on just as they came to the hospital, and mostly without preparation of any sort.

Yours faithfully,

H W STEVENSON,

HYDERABAD, SIND

Lieut Colonel, I M S

THE TREATMENT OF SNOW BLINDNESS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I would like to call attention to a very simple and effective treatment for that most distressing and painful affliction "Snow blindness."

During and after a very heavy fall of snow here and on the Gnathu La pass (14,500 feet) recently, over 30 persons (one European, the remainder Tibetan and Bhutia dak runners) became snow blind, some slightly, some severely.

By the application of one or two drops of castor oil in each eye, immediate relief was obtained, all discharge at once ceased, and in one hour after one application the slight cases quite recovered, and after two or at the most three applications in the most severe cases, vision was completely restored before three hours, slight photophobia persisting for a few days. The effect was the same, whether the cases were seen at once or after some hours, in two cases after two days.

Snow blindness, as is well known by all those unfortunate persons who have been thus afflicted, is extremely painful with a variable amount of muco purulent discharge and severe inflammation of the conjunctivæ, and lasts usually anything from two to fourteen days. A common sequela is "weak" eyes for several months after wards. In slight cases a marked degree of photophobia is present varying to in severe cases complete (temporary) loss of vision. What action castor oil has in these cases, I am at a loss to understand, but I think that considering the rapidity and ease with which it effects a cure, it should be widely known and distributed with instructions for use among all persons likely to be brought into contact with snow, as if it were to fail in curing the actual blindness, its application would afford relief to the inflamed conjunctivæ. The treatment suggested itself on account of its extraordinary effect in "night-blindness" in which, although temporary only, a good result is usually obtained from this treatment.

I hope it will be tried in future cases by other hands and its efficacy verified.

Yours, etc,

HUGH R DUTTON,

CHUMBI, TIBET, }
March, 1906

Captain, I M S

[The efficacy of cod liver oil in a somewhat similar affection, night-blindness, is well known. Night-blindness is also a glare retinalgia and is common during and after the hot dry weather of I M G.]

CHOLERA TREATED WITH EUCALYPTUS OIL

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In an epidemic of cholera that broke out in October 1905 in the vicinity of Chanchal, fifty one cases were residents of villages situated within a mile and consequently attended regularly. The patients were mostly Hindus, thirty five adults and sixteen children. All brought to notice in the collapse stage except six children who were treated from the diarrhoea stage.

The treatment adopted in all the cases was the administration of oil of eucalyptus suspended in mucilage. In cases that were treated from the diarrhoea stage subnitrate of bismuth was combined with the oil. The percentage of recovery was sixty five.

Yours, etc,

CHANCHAL.

Service Notes

THE following were the questions asked in the examination for promotion of Lieutenants, I M S, March 1906 —

SUBJECT H (ii)

- 1 What rules govern the dispensing of prescriptions by medical subordinates? *Marks 25*
- 2 How are Ward Orderlies of native corps employed in peace and war? *Marks 25*
- 3 How are Hospital Assistants apportioned among the several lines of medical assistance in the field? Sketch briefly their duties in each line *Marks 25*
- 4 What are the duties of Hospital Store keepers attached to Field Hospitals? *Marks 25*

SUBJECT H (iii)

- 1 You are in medical charge of a native corps which has proceeded to a new station. Describe in detail how you would proceed to ascertain whether the new lines of the corps are, or are not, up to sanitary requirements. How would you proceed as regards any defects observed? *Marks 25*
- 2 Detail the measures you would adopt to ensure that the medical and surgical equipment of your hospital is kept serviceable and sufficient *Marks 25*
- 3 You are ordered to mobilise a section of a Field Hospital. Describe how you would set about doing it. *Marks 25*
- 4 What would be your duties as Senior Medical Officer of a detached column on field service? *Marks 25*

MILITARY LAW

SUBJECT (D) ii

L For Officers of the supply and Transport Corps, and Officers of the Indian Medical Service
Time allowed—3 hours *Marks 200*

[Note—The following books only will be allowed in answering this paper—The official editions of the Indian Articles of War and of the Rules of Procedure (Native Army), and Army Regulations, India, Volume II.]

Question 1—What persons can be dismissed the service by order of a Commanding Officer, and under what circumstances? *Marks 10*

Question 2—Give the correct "Head" of charge in each of the following cases—

- (1) A Hospital Assistant is drunk in his quarters
- (2) A sepoy is drunk at a camping ground when marching with his regiment on relief
- (3) A Havildar is drunk in the regimental lines *Marks 15*

Question 3—An attested follower of the Army Hospital Corps steals a sepoy's watch. What steps should be taken for his trial by Court-martial in the quickest and most simple manner? *Marks 15*

Question 4—What are the powers of summary punishment vested in—

- (1) A native officer commanding a detachment in respect of the men under him?
- (2) The Principal Medical Officer of a Brigade in respect of Hospital Assistants? *Marks 10*

Question 5—What are the provisions in the Indian Articles of War regarding the appointment of Interpreters to Courts martial? *Marks 15*

Question 6—By what Courts, and to what classes of persons, can the punishments of degradation and loss of standing, respectively, be awarded? *Marks 15*

Question 7—Who has the power to summarily reduce a Non Commissioned Officer? *Marks 10*

Question 8—Criticise the following sentences awarded by summary Courts martial—

- (1) To suffer a corporal punishment of 25 lashes, and to be imprisoned with hard labour for 4 months
- (2) To be imprisoned with hard labour for 4 months and to be dismissed from the service
- (3) To be imprisoned with hard labour for 6 months, and to be put under stoppages of pay to make good the sum of Rs 20 *Marks 15*

Question 9—A District Court-martial wrongly acquits Sepoy A, though not taking all the prosecution evidence, it convicts Sepoy B, but gives him an inadequate sentence. What steps (if any) can the Confirming Authority take to rectify the acquittal and the inadequate sentence? *Marks 15*

Question 10—Are there any restrictions as to the place where a person subject to the Indian Articles of War may be tried for an offence against those Articles? *Marks 10*

Question 11—From what dates, respectively, should the following Sepoys be struck off the strength—

A—Sentenced by District Court-martial to 6 months' imprisonment with hard labour

B—Sentenced by summary Court-martial to 4 months' simple imprisonment in Military custody

C—Sentenced by Civil Court to 4 months' rigorous imprisonment against which sentence Appeals? *Marks 15*

Question 12—A Commanding Officer sentences a Sepoy by summary Court martial to corporal punishment of 30 lashes finding the prisoner unfit he commutes this sentence to 30 days' confinement to the lines. Is such commutation legal? Give your reasons *Marks 15*

Question 13—A Court martial highly disapprove of the conduct of a witness as brought out by the evidence and also of the manner in which this witness gave his evidence before them. What procedure should they adopt? *Marks 10*

Question 14—(1) A Civil Court directs a Commanding Officer to attach half a Sepoy's monthly pay in satisfaction of a decree

(2) The Commanding Officer declines to do so

(3) The Sepoy's effects, both private and military, are thereupon seized under an order from the Court. How far is the action shown in (1), (2), (3), above, legal or illegal? *Marks 15*

Question 15—(1) A Havildar is acquitted by Court martial, can he be tried by a Civil Criminal Court for the same offence?

(2) A Sepoy has been summarily punished by his Commanding Officer, can he be tried by Court-martial for the same offence? *Marks 15*

SURGEON MAJOR THOMAS EDMONSTONE CHARLES died at Flushing, Cornwall, on 2nd March 1906 aged 71. He was born on 17th October 1834 educated at the Universities of Edinburgh, Paris and Berlin, and became L.R.O.S., Ed., and M.D., Ed. in 1835. Subsequently he became M.R.C.P., London, in 1866 and F.R.C.P. London, in 1876. He entered the Bengal Medical Service as Assistant Surgeon on 22nd October 1850, became Surgeon on 22nd October 1868 and Surgeon Major on 1st July 1873. He was appointed Honorary Physician to the Queen on 23rd June 1883, and his University, Edinburgh, gave him the honorary degree of LL.D., in 1895. Early in his service, while still an Assistant Surgeon, he was appointed Professor of Midwifery in the Calcutta Medical College, and held that post till he retired from the service on 18th September 1882. After his retirement he practised for some time as a Consulting Physician, first at Cannes and then at Rome.

Surgeon Major Charles saw a great deal of active service during the Mutiny. He was present throughout the whole length of the siege of Delhi from the battle of Badli Ka Sarai, on 8th June 1857 to the fall of the City in September. After the capture of Delhi he served in the Rewari district, under Brigadier Gerrard, against the Jaipur and Jodhpur rebels, and in the operations in the Doab under Sir Thomas Seaton, being present at the actions of Gangeri Patiali and Mainpuri. He also served throughout the relief of Lucknow, from the crossing of the Gumti to the relief of the Garrison, and afterwards, under Sir Hope Grant, in Oudh. He was mentioned in despatches by Major Hume, in September, 1859, and received the Mutiny Medal with two clasps.

SURGEON GENERAL JAMES PATTISON WALKER died at Olacton at sea on 14th February 1906. He was born on 17th March 1823, educated at King's College, Aberdeen, where he took the degree of M.D. in 1842, becoming M.R.C.S. in 1844, and entered the Bengal Medical Service as Assistant Surgeon on 5th April 1845. He became Surgeon on 24th February 1859, Surgeon Major on 5th April 1865, and Deputy Inspector General on 22nd June 1872, retiring with the honorary rank of Surgeon General on 22nd June 1877. He served in the Punjab War of 1848-49, and in the Mutiny, being present in Agra Fort throughout the siege.

THERE are still four officers of the Bengal Service senior to Surgeon General Walker, on the retired list, Surgeon Majors H. B. Hinton, (14th January 1839), A. C. Macrae (24th January 1839), Helton (9th September 1843), and W. F. Macfies, (3rd December 1844). Madras has still three men alive senior to 1845, Surgeon Major A. C. Macleod (8th March 1841), and Surgeon Generals H. Young (8th January 1842) and W. Williamson (16th March 1844). The eldest living Bombay Officer is Surgeon J. Reynolds (3rd July 1845).

CAPTAIN CAMPBELL DYKES I.M.S., is transferred from Ferokeabad to Etawah as Civil Surgeon.

CAPTAIN W LAPSLEY, I M S, has received 6 months' (4 study, 2 on medical certificate) extension of leave

FROM the date of publication of this order, 5th March 1906, the undermentioned Officers of the Indian Medical Service, are qualified as specialists in the subjects noted below —

Operative Surgery

Major G Bidie, 9th (Secunderabad) Division
Lieutenant J H Burgess, 1st (Peshawar) Division
Lieutenant C H Brodribb, 5th (Mhow) Division
Lieutenant A F Hamilton, 6th (Poona) Division

Fecers

Captain F N White, 87th (Meerut) Division

Midwifery and Gynaecology

Major H M Earle, Northern Command

Psychological Medicine

Captain A W Overbeck Wright, Eastern Command

CAPTAIN A LEVENTON, I M S, is granted combined leave for 20 months and 18 days, and Captain W V Coppinger, I M S, acts as Civil Surgeon of Cachai

LIEUTENANT A D WHITE, I M S, in addition to his regular duties holds civil medical charge of the Buva Duars

IN supersession of the Home Department Notification No 921, dated the 8th June 1905, it is hereby notified that Lieutenant-Colonel D Semple, M D, R.A.M.C. (retired), held charge of the office of Director of the Central Research Institute from the 3rd May to the 13th June 1905, and that he was appointed to be Director with effect from the 14th June 1905

THE following officers, having completed satisfactorily their course of instruction, have been finally admitted to the Indian Medical Service. Their date of rank is the 1st September 1905. The Commands to which they have been assigned are shown opposite their names —

Carl Henry Reinhold (Northern)
Arthur Falconer Hayden (Northern)
Broderic Edward Middleton Newland (Northern)
Lewis Albert Hodgkinson Lack (Eastern)
Edgar John Cecil McDonald (Northern)
Kenneth William Mackenzie (Northern)
William Dundas Wright (Northern)
John Francis Boyd (Northern)
Vernon Northwood Whitmore (Eastern),
John Catto (Western)
Narindra Singh Sodhi (Eastern)
William Jackson Powell (Western)
William Cowan Gray (Secunderabad Division)

LIEUTENANT COLONEL SIR R. HAVELOCK CHARLES, M D F.R.C.S.I., I M S (Bengal), Professor of Surgery, Medical College, Calcutta, and *ex officio* Surgeon to the College Hospital, is granted privilege leave for fourteen days, with furlough out of India for eleven months and sixteen days in continuation, with effect from the 20th March 1906

With effect from the date on which he assumes charge of his duties, Major R. Bird, M D, F.R.C.S., C.I.E., I M S (Bengal), is appointed to officiate as Professor of Surgery, Medical College, Calcutta, and *ex officio* Surgeon to the College Hospital, during the absence of Lieutenant-Colonel Sir R. Havelock Charles, M D, F.R.C.S.I., I M S (Bengal), or until further orders

CAPTAIN E D W GREIG, M B, I M S, is placed on special duty at the Central Research Institute, Kasauli, under the orders of the Sanitary Commissioner with the Government of India

CAPTAIN W S PATTON, M B, I M S, held charge of the current duties of the office of the Superintendent of the King Institute of Preventive Medicine, Madras, in addition to his own special duty, from the 24th to the 30th January 1906

CAPTAIN J H J TIRELL, M B, I M S, is placed on famine duty in Rajputana

MAJOR A L DUKE, I M S (Bengal), an Agency Surgeon of the 2nd Class, on being relieved of the duties of Administrative Medical Officer in Baluchistan, is placed on temporary

special duty under the orders of the Hon'ble the Agent to the Governor General in Baluchistan, until further orders

HIS Excellency the Viceroy and Governor General is pleased to confer the title of Rai Bahadur, as a personal distinction, upon Assistant-Surgeon Hira Lal Basu, I M S, Senior Demonstrator, Medical College Hospital, Calcutta, and Assistant-Surgeon on the Staff of the Prince of Wales, during His Royal Highness's visit to India, 1905-06

HIS Excellency the Governor in Council is pleased to appoint Captain R. W. Anthony, M B, I M S, on relief by Captain C H S Lincoln, M R.C.S., (Eng.), L.R.C.P. (Lond.), I M S, to act as Civil Surgeon, Ratnagiri, pending further orders

CAPTAIN T H DELANY, M B, B Ch, has passed the examination for the Fellowship of the Royal College of Physicians, Ireland

MAJOR R G TURNER, I M S, has got combined leave for 11 months 17 days, and study leave for six months from 10th April

MAJOR CHAYTOR WHITE, I M S, Officiating Sanitary Commissioner, U P, has obtained six months' special leave on urgent private affairs

LIEUTENANT COLONEL J J PRATT, I M S, Civil Surgeon, Fyzabad, has got six months' combined leave from 26th April

CAPTAIN W M PEARSON, I M S, Deputy Sanitary Commissioner, goes to Gonda as Civil Surgeon

MAJOR C MILNE, I M S, succeeds Lieutenant Colonel Pratt as Civil Surgeon of Fyzabad

ON return from furlough Lieutenant Colonel T R Mulhoney, I M S, was posted to Karnal

MAJOR D R GREEN, I M S, has gone to Shillong as Civil Surgeon

CAPTAIN W V COPPINGER, I M S, is appointed to act as Civil Surgeon of Mymensingh

CAPTAIN C G SEYMOUR, I M S, who has recently joined the new province, is posted as Civil Surgeon of Cachai

CAPTAIN T G N STOKES, I M S, Civil Surgeon of Belaspur, is deputed as Civil Surgeon of Pachmar from 18th April to 30th June

LIEUTENANT-COLONEL, L A WADDELL, I M S, LL D, C B, C I E, has obtained an extension of leave (m c) for six months

ON the return of Major R. Bird, F.R.C.S., C.I.E., I M S, to the Medical College, Calcutta, Captain E Owen Thurston, F.R.C.S., I M S, goes temporarily to Monghyr as Civil Surgeon

BIETH — On 19th February at Poona, the wife of Lieutenant W Finlayson, I M S, of a daughter

MR L W SEYMOUR, M R.C.S., L.B.C.P. (Lond.), Superintendent of Land Records and Registration in Sind has been granted 12 months' combined leave

MAJOR M T YARR, R.A.M.C., having gone on eight months leave, H E the Governor of Bombay has appointed Mr H Ogill, M R.C.S., L.R.C.P., to officiate as Surgeon on His Excellency's staff

CAPTAIN C H J LINCOLN, I M S, has been allowed to return to duty from furlough

CAPTAIN H J R. TWIGG, I M S, has taken over charge of the Hyderabad Central Prison

MAJOR H W PILGRIM, I M S (Bengal), Surgeon Superintendent of the Presidency General Hospital Calcutta, is, with effect from the 16th April 1906, granted privilege leave for one month and twenty nine days with furlough out of India for six months and one day in continuation

MAJOR B R CHATTERTON, M D, F.R.C.S.I., I M S (Bengal), is appointed to officiate as Surgeon Superintendent of the Presidency General Hospital, Calcutta, during the absence on leave of Major H W Pilgrim, I M S (Bengal), or until further orders

CAPTAIN W R BATTYE, I M S, an Officiating Agency Surgeon of the 2nd Class and Officiating Agency Surgeon, Meshed, is appointed to hold charge of the current duties of the offices

of His Britannic Majesty's Consul General and Agent of the Government of India in Khorassan, with effect from the date of assuming charge, and during the absence on leave of Major P M Sykes, C M G, or until further orders

THE following promotions are made, subject to His Majesty's approval —

First Class Assistant-Surgeon William Baillie George (seconded) to be Senior Assistant Surgeon, with the honorary rank of Lieutenant (seconded),

First Class Assistant-Surgeon Cajetan Marie DeSouza, to be Senior Assistant-Surgeon, with the honorary rank of Lieutenant, *vice*, Senior Assistant Surgeon and Honorary Lieutenant J E D'Rozario, deceased, with effect from the 11th September 1905

HONORARY CAPTAIN J W HOGAN, S.S.M.D., got one month's privilege leave from 3rd April

ON return from leave Lieutenant-Colonel W A Quayle, I.M.S., was reposted as Civil Surgeon of Jubbulpore, C.P.

MAJOR A G HENDLEY, I.M.S., was posted as Civil Surgeon to Saugor

CAPTAIN R. D SAIGOL, I.M.S., is placed on special plague duty at Moulemin, and Assistant-Surgeon David, L.R.C.P. & S., at Bassein

COLONEL T E L BATES, C.I.E., I.M.S., Inspector General of Civil Hospitals, Punjab, is appointed a Fellow of the Punjab University

LIEUTENANT-Colonel J SYKES, I.M.S., Civil Surgeon of Bareilly, has obtained combined leave for six months from 3rd April 1906

ON return from leave Captain H J Walton, F.R.C.S., I.M.S., was temporarily posted to Sitapuri

CAPTAIN W SFLEY, D.S.O., I.M.S., has been posted to Bareilly as Civil Surgeon

CAPTAIN C S LOWSON, I.M.S., Superintendent, Central Prison, Ahmedabad, was granted 2½ months privilege leave, and Captain W H Cox, I.M.S., took over medical charge of the Jail in addition to his other duties

THE following is the Staff of the Lahore Medical College, the prospectus of which appeared in the *Punjab Gazette* for 22nd March 1906 —

Principal and Professor of Surgery and Ophthalmic Surgery, and Surgeon to the Mayo Hospital, Lt Colonel F F Perry, I.M.S., F.R.C.S. (Eng.), L.R.C.P. (Lond.), Honorary Surgeon to the Viceroy

Professor of Midwifery and Forensic Medicine, Lt. Colonel W Coates, I.M.S., M.D. (I.U.I.)

Professor of Hygiene, Lt Colonel C J Bamboi, I.M.S., D.P.H. (Cant.)

Professor of Chemistry and Toxicology, Lt Colonel D St J D Grant, I.M.S., M.B., M.A., B.Ch., F.R.C.S., D.S.M. (Dub.)

Professor of Anatomy and Comparative Anatomy, Major J C Lamont, I.M.S., M.B., O.M. (Edin.)

Professor of Medicine and Diseases of Women and Children, and First Physician to the Mayo Hospital, Captain D W Sutherland, I.M.S., M.D., F.R.S. (Edin.), M.R.C.P. (Lond.)

Professor of Pathology and Materia Medica, and Second Physician to the Mayo Hospital, Major H G Melville, I.M.S., M.B., C.M., F.R.C.S. (Edin.)

Professor of Physiology and Botany, O C Caleb, Esq., M.B., M.S. (Durh.), M.R.C.S. (Lond.)

Lecturer on Midwifery and the Diseases of Women to the Female Students (Hospital Assistant Class), Miss M F Staley, M.D. (Lond.)

Lecturer and Senior Demonstrator of Anatomy and Superintendent, Hindustani Class, Beli Ram, Rai Bahadur, Senior Assistant-Surgeon, L.M.S.

Lecturer on Forensic Medicine and Midwifery, and Assistant Chemical Examiner, Guran Ditta Mal, Rai Sahib, Assistant Surgeon, L.M.S.

Lecturer on Materia Medica, Medicine and Hygiene, Hira Lal, Assistant-Surgeon, L.M.S.

Lecturer on Surgery, Alla Jowaya, Assistant-Surgeon, L.M.S.

Lecturer on Pharmacy, Military Assistant-Surgeon H V W Cox

Junior Demonstrator of Anatomy, M Abdul Aziz, Assistant Surgeon, L.M.S.

Junior Demonstrator of Anatomy, Mehta Harnam Datta, Assistant-Surgeon, L.M.S.

Assistant to the Professor of Pathology, Syad Muhammad Husain, Assistant Surgeon, L.M.S.

THERAPEUTIC NOTES AND PREPARATIONS

OUR attention has recently been directed to the excellence of the BISMUTH MIXTURE of Messrs J Sellers & Co of London, which is obtainable at Messrs Smith, Stanistreet & Co, Calcutta. It is of great value in atonic dyspepsia, gastric irritation. In the morning sickness of pregnancy it has been used with considerable success. It appears to be a genuine old and reliable preparation.

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Acetyl salicylic acid is insoluble in the stomach, but readily soluble in the intestine and therefore causes no gastric irritation. It may be used in any conditions in which salicylic acid or sodium salicylate is usually employed.

It is unquestionably of great service in gout and rheumatism, especially in connection with the ear affections associated with these conditions. It is also of conspicuous value in some forms of headache and neuralgia.

It has been administered with success in chorea, pleurisy, glycosuria, eye diseases, and for the pruritus of tabes dorsalis and disseminated sclerosis. It has also been given for the relief of pain following abdominal operations, and may be employed generally as an analgesic. Acetyl salicylic acid, presented as 'Tabloid' 'Xaxa', readily disintegrates, and its therapeutic effect is promptly manifested. 'Xaxa' contains no free salicylic acid.

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HORLICK'S MALTED MILK is a preparation of high nutritive value. It keeps well in hot climates, and is easily prepared by mixing with water.

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BOOKS, REPORTS, &c, RECEIVED —

The World's Anatomists By Dr Kemper (P. Blakiston Son & Co)
Diagnostic Methods Sulhi (W B Saunders & Co)
Kidney and Spleen Diseases Nothnagel (W B Saunders & Co)
Monihan's Abdominal Operations (W B Saunders & Co)
Howell's Text book of Physiology (W B Saunders & Co)
Manual of Children's Diseases (W B Saunders & Co)
Anatomy and Physiology for Nurses. (W B Saunders & Co)
H Hare's Practice of Medicine (Klimpton & Co)
H Hare's, Practical Therapeutics (Klimpton & Co)
Genito-Urinary and Venereal Diseases White and Martin (W B Saunders & Co)

LETTERS, COMMUNICATIONS, &c., RECEIVED FROM —

Major Elliott, I.M.S., Madras, Major Maynard, I.M.S., Calcutta, Major A. R. Anderson, I.M.S., Port Blair, Lt McCowen, I.M.S., Poona, Major Browning Smith, I.M.S., Lahore, Major Nott, I.M.S., Murahidabad, Capt Oxley, I.M.S., Secol, Major Barry, I.M.S., Maymyo, Capt. Urston, I.M.S., Monghyr, Major W Jennings, I.M.S., Bombay

Original Articles.

EXTRACTION OF THE LENS IN ITS CAPSULE, AN EXPERIENCE OF 311 CASES, AND A METHOD OF RECORDING CASES

BY G. T. BIRDWOOD, M.A., M.D.,

MAJOR, I.M.S.,

Civil Surgeon, Agia

WHEN I read that Major Smith had done 2,616 cataract operations with a percentage of 99.2 successful, and Major Herbert had done 1,172 cases with only one suppuration, and noritis severe enough to resist treatment, I felt rather diffident about publishing my own results, which compare but poorly with these figures. But I do so in order to draw a comparison between my capsulotomy and my non-capsulotomy cases. In 1904, I did 448 capsulotomy operations with 91 per cent successful, in 1905, I did 401 capsulotomy cases with 91.6 per cent successful. Since reading Major Smith's paper in September, I have done 311 cases without capsulotomy with 90.9 successful, but in the last 50 of these I have had only one failure which is the best continuous success I have ever attained. All the non-capsulotomy cases were good, clean, healthy, selected eyes, but the capsulotomy cases of 1904 and 1905 were in no way especially selected cases. If they had been, the percentage of successes would have been higher, for although a few cases were rejected and sent back to the wards for treatment, yet frequently eyes with mucous discharge, old thickened lids, old leucomata, hazy cornea, slight glaucoma, were operated on, conditions which render the eye more vulnerable and make success less certain. I have not been able to find any figures which show the results of the average operators in India except the annual reports of the United Provinces for 1903 and 1904 when 10,030 cases of cataract were done with a percentage of 89.1 "cured." And this, I think, must be about the percentage of successes with the average operator in India. Colonel Hall who had experience above the average was content with 95 per cent successful. Major Smith claims that extraction without capsulotomy should be the operation of election with few exceptions, and Captain Oxley supports him in this view. It is hard to argue against Major Smith's splendid results of 99.27 per cent first class results. Such almost proves that he is right. Major Herbert, however, says that this operation violates the essential conservatism of correct surgery, and not one atom of evidence has been advanced sufficient to justify the removal of transparent capsule. He suggests that ophthalmic surgeons in general must admit that it is probably the correct procedure in the Punjab on the grounds that there are a large number of patients to be dealt with and pressing demands

upon time and hospital accommodation and also the surgeon's extraordinary skill. I cannot agree with this view. If it is a correct procedure in the Punjab it must be the correct procedure elsewhere. The grounds mentioned above are surely no reason for it. The 300 to 400 which annually fall to the lot of many civil surgeons should be amply sufficient to give him the necessary skill if it is the correct procedure. The reasons why it is perhaps the correct method is Major Smith's splendid results, which to my mind are marvellous, considering the many factors on which success depends. Major Herbert maintains that it introduces an unnecessary risk for an advantage which may be gained without it. But this remains to be proved. Many surgeons in India will probably put it to the test, and if they can raise their percentage of good results to anywhere near Major Smith's figure it will show there is no greater risk than in the old operation.

My general impressions of the non-capsulotomy operations on the experience of 311 cases are as follows —

1 I am gradually getting convinced that it should be the operation of election in nearly all cases. My percentage of success on the whole series is not quite as good as in the capsulotomy cases, but this is probably due to want of experience of the operation. The more experience I get of the operation, the fewer are the failures.

2 There are a large percentage of lenses with boggy and sticky cortex for which it is an ideal operation and on which it should always be done. It is not the transparent capsule which subsequently gives trouble, but the soft adherent cortex which swells up and causes irritation. After capsulotomy it is almost impossible in many cases to remove this.

3 Morgagnian cataract and cataracts with semi-fluid cortex are the most easy to deliver successfully complete in their capsules. In these cases the capsule seems to be tougher and less adherent to the hyaline membrane. Often the gentlest touch with the strabismus hook and a little counter-pressure causes the successful delivery of the lens entire. Also the lens being partially fluid is able to alter its shape on pressure and to thus slip out of a smaller incision by assuming an oblong shape.

4 I was struck with the comparatively large sizes of the lens in its capsule. In some cases the lenses seem exceptionally big and to demand a large incision, and it is best from the first to make a big incision. To attempt to force a big lens through a small incision is to court failure.

5 In my experience the escape of vitreous is the most common accident and very difficult to avoid. I think Major Smith rather minimizes the readiness with which it escapes. No doubt it depends on the size of the incision, and on the skill of the operator, but also very largely on the adhesiveness of the capsule and the facility with

which the lens is dislodged from its bed Major Smith only gets escapes in 6 per cent In my first cases I had 47 per cent escapes and in my last cases 35 per cent I don't think the average operator would reduce his escapes to below 30 per cent Provided the capsule is unruptured no evil effects whatever seem to follow the escape of vitreous even when in a fair quantity It remains to be seen whether these cases will stand the test of time If the capsule ruptures and the vitreous escapes at the same moment from want of skill or accident, trouble may be expected In cases where the vitreous escapes before the lens presents, I generally pass the spoon under the lens and deliver it entire with the very best results

7 An iridectomy seems to me to be always desirable for the following reasons (a) It is easier to get the lens started on its outward journey (b) If the capsule bursts it is easier to remove the soft matter which has been left behind (c) There is much less likelihood of prolapse of the iris

8 I think a certain amount of astigmatism follows in many cases In an agricultural population who do not read or write, this can be disregarded With the more educated classes it may be a disadvantage, but I have not yet enough experience of the amount of astigmatism or of the ultimate results to know whether this counterbalances the general merits of the operation

re-adjusted with the point of the strabismus hook But if the vitreous is escaping, it is best to leave them alone
I feel that 311 cases are too small a number to come to any definite conclusion on, and I only publish my results and experience as I am shortly going on leave, also the merits of the operation are still very much disputed, so that the experience of every one who tries it will be useful to others

ON RECORDING CASES

There are, I think, a large number of Surgeons who do many cataract operations annually, yet who do not keep any record of their results except the Government operation book showing columns for "cured" or "otherwise" For the last three years, I have tried to keep more detailed records of the results Since I have done so, I have learnt how many valuable lessons such a record can teach one It brings one's failures home to one and stimulates one to further efforts to improve It may interest and help others to see a form for recording cases which I have devised, Fig A It is concise, and at a glance the eye can run down any particular column of success or failure or complication—any operator can add any other column he likes as "needling" Every morning when cases are dressed a compounder carries the book round and the result of each case at its dressing is noted In making

FIG A

Number		Date of operation		DETAILS									OPERATION				COMPLICATIONS						RESULT		Date of Discharge		Operator		REMARKS							
1	2	3	4	5	Name				Age	Sex	Caste	District	Right or Left	General condition of Eye, Tension, Lids, &c	Nature of cataract	Iridectomy	Capsulotomy	Irrigation	Escape of vitreous	Other accidents	Congestion	Simple Iritis	Plastic Iritis	Prolapse of Iris	Lenticular matter	Opaque Capsule	Corneal hardness	Suppuration	No of Spectacles.	Vision	Date of Discharge		Operator		REMARKS	

Fig A —Form for recording cataract cases

9 One of the most important points in the technique and one almost essential to successful issue is slowness A very slow pressure sometimes straight downwards, sometimes downwards and for wards with the strabismus and hook is needed Even when the lens is half out, this slow character of the movement must be borne in mind

10 There seems to be a great tendency for the iris to be caught in the angles of the wound at each side Often these caught edges can be

up statistics on a large number of cases such a record in columns is most useful
Fig B is a bed-head ticket which I have adopted in the Agia Eye Hospital This is filled in or corrected by the operator at the time of operation—an exact condition of the eye and its lids is thus briefly recorded and can be seen at a glance I have found it most useful for ready reference in going round the Wards at dressing time It also teaches the subordinates to be observant and careful I have found these forms

so useful that I publish them with the thought that others might like to try them and find them a help in their work

FIG B

BED HEAD TICKET, AGRA EYE HOSPITAL				
YEARLY No —		190	OPERATION No —	
Disease	Name		Occupation	
	Age		Residence	
	Sex		Admitted	
	Caste		Discharged	
CONDITION OF EYES				
		Right	Left	
Appearance of lens Tension Pupil size Reaction Adhesion Anterior Chamber Perception of light Projection of light Condition of cornea Condition of conjunctiva Condition of lids Condition of lachrymal passages Condition of nasal cavity				
HISTORY —Duration Other disease General health Habits				
OPERATION NOTES —Date Iridectomy Capsulotomy Irrigation Escape of vitreous Other accidents Operator				
RESULT — Complication Spectacles Vision				

Fig B —Bed head ticket filled in at time of operation

A FURTHER NOTE ON IRRIGATION IN CATARACT EXTRACTION

By R. H. LLLIOT, M.D., B.S. (LOND.), F.R.C.S. (ENG.), ETC.,

MAJOR, I.M.S.,

Superintendent of the Government Ophthalmic Hospital, Madras

IN April 1903 I drew the attention of the readers of the *Indian Medical Gazette* to McKeown's method of irrigation in cataract extraction, by means of an article in these columns. Since then I have used the method in nearly 2,000 cases, and have been thus

enabled to try many different departures from the ordinary technique, some of which have proved of great value, whilst others have been discarded as useless, or at least not worth while continuance in. At the present time, whilst so much attention is being devoted in these columns to the question of how best to extract a cataract, I trust I may be allowed to place my later experience with this method at the disposal of Indian surgeons. I desire to do so, in the hope of stimulating others to use irrigation as a routine step in cataract extraction. Increased experience of the method has only served to heighten my opinion of its value, whilst it has taught me how much there may still be to learn in the details of its application.

At the same time those who, with fewer opportunities for using it, have given it a trial, have without exception testified to me of the value the method has been to them. There are not a few medical men in Southern India, who are now employing irrigation in cataract extraction.

The Toilet of the Iris and Capsule

It will be freely admitted that one of the most important matters in the extraction of a cataract is the safe and thorough return of the iris and torn lens-capsule back into the chamber. This can only be carried out after the lens debris have been washed out in the usual way. There are several methods of attaining our end. I shall enumerate them in order of their ease of performance, which will naturally be also their order of preference —

(1) *Irrigation under the lower margin of the iris*, by depression of the nozzle of the instrument after its introduction within the chamber. This serves also to wash out debris of lens from beneath the membrane, and for the latter purpose is a regular step in every operation. The iris bellies out, and is often carried bodily towards the lower part of the chamber, and away from the incision. Not infrequently, however, the opposite effect is produced, and the iris is washed out with the cortex, so that its edges prolapse in the wound.

(2) If the above manoeuvre fails to return the iris, the nozzle of the irrigator should be withdrawn 2 or 3 mm. length from the incision and a gentle stream of fluid should be directed on the lips of the wound from outside. The chamber will often fill at once, and the iris fall into place almost with a snap.

If reposition is still unaffected, it may be safely assumed that one of two things has happened. Either the iris is caught in the angles of the wound, or (and more commonly still) the membrane has been folded on itself and fixed there. The former accident will seldom occur to an experienced operator, for it is usually due to the iris being pulled on during iridectomy. If the hold of the iris-forceps on the membrane is a very light one, and if the iridectomy is quickly

and cleanly made, it will very rarely happen that the pillars of the coloboma become impacted in the angles of the wound. Such an accident is the mark of slovenly or unskilled operating. The folding of the iris on itself is a much commoner complication, and one which it is often difficult to avoid. What happens is that the iris becomes thrown into folds during the exit of the lens, and that these folds become, as it were, gummed together by the sticky lens substance, or by some other means more difficult to explain. I frequently demonstrate to medical visitors and to students the unfolding of those iris creases under the influence of irrigation. One can watch the folds open, and the iris returning to its place with an action that suggests the unfolding of a fan, or that of a theatre curtain as it is dropped. This leads me to the third method, which consists of—

(3) *Irrigating with the nozzle within the chamber, the stream being directed over the anterior surface of the iris, instead of below it.* One can re-inforce this method by at the same time gently stroking the iris in the required direction with the flat of the irrigator-nozzle. It will sometimes happen that an iris will tend to prolapse on the use of even the gentlest stream. This seems to be due to want of tone, and often yields to the steady flow of the fluid, the tone appearing to be regained. If this is not quickly the case, I proceed to the next method, viz—

(4) *The reposition of the membrane with a curette, after seeing the chamber has been washed clean.* If all these means fail, and it is but seldom that they do so if properly used, there remains yet a very valuable method, viz—

(5) *The replacement of the iris edges by seizing each in turn with carefully introduced iris-forceps, and pulling them in the required direction.* A sharp key hole pupil at once succeeds to the bow-like curve of the iris, or to the upward displacement of the pupil, either or both of which indicate a failure in proper replacement of the membrane.

It will seldom be difficult to replace the iris satisfactorily, if one is careful (1) not to pinch the portion one picks up in the forceps, and (2) not to draw the membrane tightly into the sclero-corneal section. If the iris is pinched the patient experiences pain, and in consequence shrinks away, and by so doing draws the iris tight into the section. An operator who has not acquired the light touch which renders him independent of support for his hands, may easily do the same thing, even in a quiet patient. My routine practice is to perform an iridectomy in every cataract extraction, a small piece of the pupillary margin of the iris is seized gently, and withdrawn from the chamber, without tugging on it at all, a section is then made with scissors at right angles to the wound, a small segment being cut off cleanly with one cut. If the membrane does not at once fall back into the

chamber in its proper position, I wash it back with the irrigator, before commencing extraction, this saves such a case from impaction of the iris in the wound-angles. If the iris does not readily return, I use the nozzle of the irrigator as a curette to replace it, or introduce a curette for the purpose. In some cases after delivery of the lens, it may be found that the iris will not wash back, on carefully examining the wound, the cause of this may be at once revealed in the impaction of a mass of cortex under the scleral lip of the corneo-scleral wound. Such a mass will most often be left behind, when we are dealing with lenses, in which a firm nucleus is surrounded by a layer of cortex of a doughy or cheesy consistency. As the lens dislocates upwards, and tilts its upper edge forward for delivery, it may happen that the edge of the nucleus more nearly corresponds with the gap of the incision, than does the actual upper edge of the lens. A fracture takes place in the lens at the level of junction of the nucleus with cortex above, and the upper margin of the nucleus becomes the leading point of the delivering lens, whilst the brittle cortex strips off above and remains impacted under the scleral edge of the sclero-corneal wound. I think I am right in saying that the capsule is invariably left behind at the same time. Very often when the latter cannot at first be seen, it is at once obvious on filling the chamber with fluid from the irrigator. The mass of impacted lens-matter may in very many cases be easily got rid of, and the iris at once replaced by the following manoeuvre—

(6) *The irrigator-nozzle is turned round so that the stream is directed backwards, or even upwards and backwards, thus playing direct on the impacted mass.* Very often this at once suffices to wash out the obstruction, and the iris easily slides into position, as soon as the stream is again directed over its surface in the usual direction. If this is not the case we may next proceed to another manoeuvre, which, however, I only recommend to those who are confident of their skill, as the result of considerable practice.

(7) *A pair of iris-forceps being introduced into the chamber one seizes a portion of the capsule, which can be seen hanging down into the chamber, and draws it towards the centre of the pupil.* By so doing, one everts the shallow bag formed by the upper cul-de-sac of the capsule, and thereby empties its contents (cortical matter) free and loose into the chamber, from which they can be easily washed out. At once the impaction of the iris is relieved, and the membrane can be easily returned into position. Very often, when the impacted capsule cannot easily be seen, one can, as already stated, render it patent by gently irrigating the chamber, the flapping fragments of the torn capsule at once become obvious, and are easily seized. In recent extractions, I have been resorting to this manoeuvre with increasing frequency.

When dealing with Morgagnian cataracts, or with cataracts in which the cortical matter is abundant and soft, it is my practice to wash out the whole lens (nucleus and all) with the irrigator. As soon as the iridectomy has been made, all instruments save the irrigator (the speculum excepted) are laid aside, and a stream of fluid is directed into the chamber behind the lens. At once the whole cataract washes out (nucleus and cortex) with the least possible disturbance to the eye, for the even hydrostatic pressure reduces the risks of delivery to a minimum. It is a most fascinating manoeuvre to watch or to perform.

Peripheral Iridectomy

A free trial was given to partial iridectomy. Instead of making the usual complete section of the iris, one seized only the peripheral edge with the forceps, withdrew it from the chamber, and cut out the peripheral portion of the membrane, leaving the pupillary ring with the sphincter intact. The cases did well, and in those one was able to follow, the result was satisfactory, a very active pupil was left, while the main advantage of iridectomy was attained, inasmuch as a free sluice gate was provided for the escape of out-rushes of aqueous fluid, on any rupture of the section. There proved, however, to be disadvantages, which for busy Indian practice at least more than counterbalanced the advantages. It was much more difficult to wash the chamber clear, and this lavage took much longer than with a complete iridectomy. Moreover, the pupillary bridge of iris prevented the easy escape of the lens, and was sometimes broken during expulsion. I have dropped this manoeuvre in consequence.

I have already emphasised the advantages of irrigation in enabling us to deal with a falling in of the cornea on the one hand and with the presence of troublesome air-bubbles in the anterior chamber on the other, and I need not farther dilate on the subject. The advantages are too obvious to any one who has had any experience of cataract extraction. (Vide *I M G*, April, 1903.)

Irrigation as a routine step in Iridectomy

For whatever purpose an iridectomy is undertaken, I invariably use the irrigator as a matter of routine. As soon as the iris section has been made, the nozzle of the instrument is introduced and a gentle stream is poured into the chamber. At once the iris falls back into place, and blood is easily and quickly washed out. Moreover, as in cataract extraction with the use of this instrument, the operation closes on a full chamber, and enables the surgeon to see that his section edges are in good apposition. It is no small advantage to substitute the even hydrostatic pressure of a sterilised normal saline solution for the introduction into the chamber of various instruments. Need I dilate on the advantage

of working with a clear chamber which permits every detail to be easily seen, instead of groping to replace an iris which is hidden by a quantity of blood?

Cleansing a cloudy chamber

It not infrequently happens that during the course of an extraction lens debris or blood escapes into the chamber, and renders the field of operation obscure. If the lens presents easily, this is not a matter of much consequence, as the disturbing matter is usually expelled with the cataract, unfortunately this clouding of the chamber is most likely to occur when for one reason or another the lens is not easily expelled. It is one thing to have to decide what it is best to do, when the details are thus obscured, and quite another, when by means of a few seconds irrigation, the whole field lies plain before one. It can at once be seen, for instance, that the section has been made too small, or that the lens has dislocated upwards and laterally, and these defects can at once be remedied, with all the advantages attendant on clear vision. It seems hardly necessary to point out that if the lens happens to have dislocated upwards and inwards, or upwards and outwards, the direction we will have to apply our pressure to replace it, before delivery can be effected, will be different in the two cases, to attempt to replace it in the wrong direction will only lead to disaster, whereas a few moments suffice with properly applied pressure (personally I usually use a needle for the purpose) to right the dislocation, and clear the path for easy delivery.

The Preparation of the Eye

Since writing my paper in 1903, I have in several respects altered my methods. Each such alteration has been made after very careful deliberation.

All my instruments are now boiled

The knife, needle and scissors are wiped clean, after each operation, and then points are then plunged under boiling water for one minute. They do not seem to suffer thereby. One pair of scissors lasts me for more than 100 cataracts, and one knife or needle for 20 to 40 operations. The remaining instruments are boiled, as before, for five minutes between each two operations. My dressings are sterilised in an autoclave, and I have discarded the use of antiseptics.

The eye is closed for 12 hours before operation with a sterilised pad and bandage. If on opening it, the secretion proves to have been excessive, or the conjunctiva is congested, the patient is put off for a week or more, as the case may be. Very great stress is laid on the preparation of the conjunctiva, and cases are detained under treatment weeks or even (rarely) months, if necessary. Every case is carefully examined for diseases of the lachrymal apparatus. Dacryocystitis is treated with extirpation of the sac

In cases of old-standing obstruction, in which there is no collection in the sac, and the passages are shrunken, I am content to obliterate the canaliculi with a pointed cautey, after having slit them up half way, in order to secure a sufficient raw surface of contact.

I have given up chinosol solution, and use boiled water. I am convinced that the eye-surgeon's motto should be "*Asepsis, not Anti-sepsis*."

As each patient comes on the table, his eye is carefully cleansed in the following way. A number of small sticks, 5 inches long, and as thick as a thin mapping pen are mounted with small swabs of cotton-wool, and then sterilised in the autoclave, thence they are transferred into a sterilised tin box, and thence again, just before operation, into sterilised boric acid solution in a bowl. An aluminium vessel, shaped like a tea-pot with a long spout is used for irrigation. I elevate the upper lid with my left hand, and use a swab in my right, while an assistant pulls down the lower lid with one hand, and pours in a stream of the sterilised boric lotion into the conjunctival sac from the "tea-pot" with the other. *Every part of the conjunctival sac is thoroughly cleansed.* At first each swab comes out coated in most cases with slimy mucus. After a few swabbings, the mucus is all removed, and with it, no doubt, a large number of bacteria, which constitute a menace to the success of the operation. The idea was suggested to me by Major Herbert's perchloride treatment. It has this advantage over the latter that it does not cause any reaction afterwards, though often painful at the time. I am not aware of any other writer beside Major Herbert who has drawn attention to the dangers of this mucus, and yet it occurs in considerable quantity in nearly every eye, and obviously calls for removal, before a major operation is undertaken. I tried the perchloride method and abandoned it as I found it set up a marked congestion of the eye. The method I now advocate has all the advantages of Major Herbert's method, without setting up any irritation.

SOME PRACTICAL POINTS ABOUT VACCINE LYMPH

By J. ENTRICAN,

MAJOR, I.M.S.,

Civil Surgeon, Meiktila

I do not propose here to discuss the question of the best medium for incorporation with vaccine lymph obtained from the calf, but merely to call attention to the various mechanical processes, by which lymph is made suitable for transmission throughout the country.

This branch of the work seems to me a rather neglected one, it has been, as it were, overshadowed by the more important question of how lymph can be best preserved and purified, and

the mere mechanical aspect of the problem has been somewhat lost sight of. Yet though less important, this aspect has its value and its interest.

After taking over charge of the Government Vaccine Depot at Meiktila two years ago, and becoming acquainted with the routine work, I could not help being struck with the tedious and cumbersome methods of "loading" in vogue here, and elsewhere throughout India, as far as I could learn. There seemed room for improvement, and after various trials and some failures, the methods which I shall shortly describe were introduced.

As a general rule, lymph is incorporated with lanoline or vaseline and "loaded" into collapsible leaden tubes, or else mixed with glycerine, or glycerine and distilled water, and loaded into capillary glass tubes. In both cases the initial procedure is the same, the lymph being triturated in a mortar or passed through one of the machines made for that purpose. (In Meiktila we use a Chalybaus machine, worked by a small hot air motor engine, this latter being a most useful adjunct, though the Chalybaus can also of course be worked by foot.) The medium selected is added and the compound thoroughly mixed in a mortar. This mixing, by the way, can be done much better and more rapidly by the use of a large mortar fixed to the table, so that a man can work the pestle with both hands.

The lymph is then ready for loading, unless in the case of glycerinated lymph it is desued to chloroform it.

To take the lanolinated lymph first (I have no experience of vaselinated lymph, but presume it would be similar in all respects) the usual procedure is to "pat" or "poke" the paste into the collapsible tubes, with a spatula or glass rod, each tube taking an expert man one to two minutes to fill.

The machine devised to replace this hand labour consists of a brass cylinder, which we may call the "receiver," open above and closed at its lower end except for an outlet fitted with a nozzle and a stop-cock. Fitting very accurately into the receiver, is a second cylinder or piston, open above and completely closed below. The lower outer end of this piston and the lower inner end of the receiver into which it fits, should be preferably cone-shaped or at all events rounded.

The receiver is mounted on a brass stand, allowing the hands of the operator to work freely underneath.

The nozzle of the receiver, which, when the latter is in position, points downwards, is made of such a size and shape, that a collapsible tube can be pushed over it and will remain hanging unless forcibly detached. The bore of the nozzle is made as large as possible.

The lanolinated lymph is placed in the receiver, the piston adjusted and a heavy leaden core

inserted into it. The weight of the brass piston and leaden core combined, exerts enough pressure on the paste, to force it out through the nozzle as soon as the stop-cock is opened. The collapsible tubes have their open ends pushed over the nozzle and are filled as fast as they can be withdrawn and replaced. Before the tube is pushed over the nozzle the small cap of the tube should be removed and the appearance of a little paste at the orifice thus opened is a signal that the tube is full.



In the cold weather it was found that the weight of the piston and leaden core was not sufficient to expel the lymph rapidly, so a screw was arranged which could replace the leaden core and force down the piston on to the lymph. This, however, requires a second man to work, and is only used for three months in the year. During the remaining nine months, the paste is soft enough to be expelled by the weight of the leaden core acting automatically.

After a little experience in working this machine, it was found that a man can fill 100 tubes with lanoline paste in 10 minutes, a work which formerly required over two hours. There is also less waste and less risk of contamination. The whole machine being of metal can be sterilized by boiling.

To turn now to glycerinated lymph. There were three methods of loading capillary tubes: sucking up the lymph by the mouth or by small india-rubber "fillers," similar to those used for filling stylographic pens, or with a machine used by the Local Government Board in England worked by a "water force pump," requiring a pressure of 40 feet of water.

The two former methods need only be mentioned to be condemned, while the last is slow

and the water-power not always available. I have never seen the machine at work (though there is one at Meiktila, we have never been able to use it on account of this lack of water-power), but understand that it is not very satisfactory, as the pressure is not easy to regulate, and the lymph is frequently squirted through the capillary tube and wasted. Besides as the machine fills only one tube at a time, I cannot imagine it filling more than a few hundred tubes in an hour.

To meet the difficulty the following machine was devised. It consists of a glass vessel (the original one was a pint measure with the top cut off), closed by a moveable brass cap, which, when screwed down, makes the vessel air-tight. Through the centre of the brass cap passes a piston rod, which carries at the end inside the vessel, a horizontal brass plate. An air-tight packing surrounds the piston rod where it passes through the cap, so that it can be raised or depressed, without in any way affecting the state of air tension inside the vessel. The horizontal plate is bored with a number of holes each large enough to take a bundle of 100 capillary tubes. There is a stopcock which puts the interior of the vessel in communication with an exhausting pump, and another in communication with the external air.

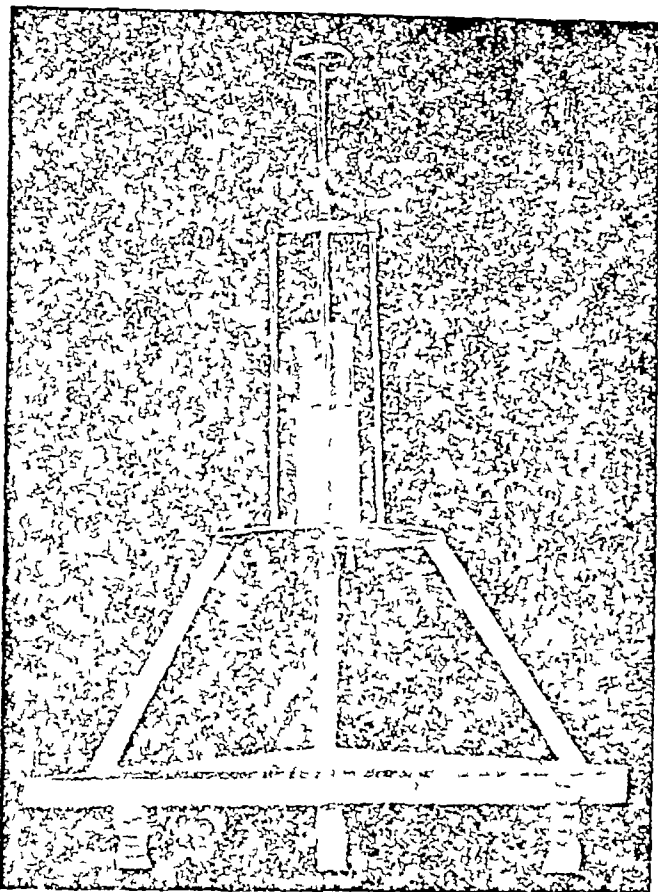
The capillary tubes are first sealed at one end and made into bundles of one hundred, held together by rubber rings, a thick ring near the sealed ends of the tubes, and a thin ring near the open ends. These bundles can very readily be made up by using a test tube from which the "lip" has been cut off. The capillary tubes are filled into the test tube sealed end first. The rubber rings are slipped on to the test tubes, which is then inverted, and the capillary tubes allowed to run out a certain distance. The rubber rings are then slipped from the test tube on to the capillary tubes. This method brings the open ends of the tubes all to one level, a somewhat important point. It does not matter how uneven the sealed ends are.

The lymph to be loaded is poured into the glass vessel. The bundles of tubes are fitted into the holes in the horizontal plate, open ends down, sealed ends upward, the thick rubber rings preventing them falling through and keeping them in an upright position.

The combination of piston rod, horizontal plate and bundles of tubes, is then inserted into the vessel, taking care that the lower open ends of the tubes do not dip into the lymph. The cap is screwed tight, the stop-cock communicating with the air closed, that with the exhaust pump opened, and the air inside the vessel exhausted, or at all events reduced to a very low tension. The piston rod carrying with it the horizontal plate is then depressed until the lower ends of the tubes dip below the surface of the lymph. Air is then admitted, and the

lymph runs up into the capillary tubes, until the attenuated air inside them, has been reduced to atmospheric pressure, which, with a good pump, is very near their upper sealed ends.

The piston is again raised, carrying the capillary tubes out of the lymph in which their lower ends were immersed. The bundles are now suspended in the vessel and are full to their lower ends with lymph.



The stop-cock communicating with the open air is again closed and the vessel exhausted, but only to a slight degree. The result of this is that some of the lymph is sucked out of the capillary tubes. When sufficient has been withdrawn (experience soon teaches the right amount), air is again admitted, and the lymph in the tubes runs up to its former position, but leaves the lower ends of the tubes empty by just that amount of lymph which has been sucked out. In practice the amount of lymph in each tube can be regulated with the greatest nicety and without the smallest waste.

The cup of the vessel is now unscrewed and the bundles taken out. The open ends are cleared of any adherent lymph by rinsing in distilled water and are ready for sealing.

This description may possibly sound complicated, but in practice it is simplicity itself, and fifteen thousand tubes can be filled in an hour with the machine at present in use. There is practically no limit to the number which could be loaded in a given time, if a large enough machine were employed. "Sealing" is the next

point in the preparation of the capillary tube. The ordinary spirit lamp is unsuitable, it flickers, does not develop sufficient heat to melt the glass rapidly and is, in consequence, liable to overheat the whole tube with its contained lymph. The methylated spirit Bunsen burner, made by Messrs. Band and Tatlock, is a distinct advance on the ordinary spirit lamp, but it possesses the same disadvantages though in a minor degree.

For sealing by heat, nothing in my experience can approach a little instrument I obtained from America (though probably it could also be procured in England). It is a torch used for brazing steel and is worked with petrol. This gives an absolutely steady, intensely hot flame, so that a fraction of a second is sufficient to thoroughly seal a capillary tube, and there is no risk of the contents of the tube becoming heated. A man can seal three thousand tubes in an hour with this little apparatus, the discovery of which gave me much joy. Another method of closing the tubes gives even more rapid results. The bundles of tubes after filling are placed in another machine similar in all respects to that used for filling, but containing instead of lymph a thick solution of bottling wax in chloroform. The vessel is closed, very slightly exhausted of air, and the ends of the bundles depressed below the surface of the wax. Air is re-admitted and a small plug of wax is forced up into each tube. The bundles are taken out, left until the wax has hardened (a matter of some hours), and the waxed ends rinsed in a little methylated spirit. This dissolves the wax between and around the tubes and enables the bundles to be separated into individual tubes, but does not unless the rinsing is too long continued, dissolve the wax plug inside the tubes. Tubes sealed in this way have been found just as satisfactory as those sealed by heat, while there is a great saving of time and labour.

The machines described have now been in use in Meiktila for over a year and have stood the test of time and experience. There is nothing complicated or anything likely to get out of order about them. They do work which formerly occupied several hours, in a few minutes, and they do it better.

A NOTE ON THE VALUE OF REVACCINATION

By R. D. MACGREGOR,

LIEUT. I.M.S.

THE tables, given below, have been constructed from the results obtained by the revaccination of a large number of sepoy soldiers of a Madras regiment, and the details of their previous vaccination and revaccination from the medical history sheets.

The total number for which all the data were secured were about two hundred. The whole of these, however, have not been entered in the

tables on account of indefinite results both during revaccination this year and then previous revaccinations as entered on the medical history sheets. This uncertainty is due to the difficulty of classing the results known as "modified." Out of two hundred revaccinations this year in the regiment, sixty-nine gave results that were modified. This modification of vaccinia is of all degrees—from cases which were little short of completely successful to others in which it was doubtful whether modified vaccinia had resulted or failure to "take." The three headings in the Vaccination Register supplied to Army hospitals are given as "a perfect vaccine vesicle," "a modified vaccine vesicle" and "failure." In many cases a glance would show that success had resulted, so also complete failure was quite evident when it took place. The remaining cases were sometimes really modified, *i.e.*, the resulting vesicles, though perfect in shape, were small, and the areola of hyperæmia around the vesicles of small area and only moderately raised.

In yet other cases, the vesicles would be quite minute, with only a slight amount of surrounding hyperæmia. Yet again, no vesicles at all might be apparent, but a fair degree of inflammatory reaction be present. In other cases, a certain amount of an exudation of serous fluid appeared to have occurred over the areas treated, with the formation of irregular scales.

In such cases, the difficulty was very great of deciding whether modified vaccinia had resulted, or whether the effects seen were due to the reaction on the part of the organism against the virus introduced, with failure of the disease to "take."

For these reasons, it would appear advisable that a fresh heading be added to the official Vaccination Register of "doubtful," or one of similar import. There would then be clearly shewn the three definite results of "success," "failure" and "modified vaccinia," while cases on the borderland of modified vaccinia and failure would be shewn as "doubtful." In consequence of this uncertainty, the modified cases have not been included in the following tables, only those being given which have been entered definitely as successful or as failed.

Table I is a summary of the results of revaccination this year in all classes of cases. The cases have been divided up into three classes—

- (1) Those not previously revaccinated
- (2) Those which had been revaccinated once previously
- (3) Those which had been revaccinated twice previously

The last two classes are again subdivided according to the success or failure of previous revaccinations.

It will be seen from the table that the majority of the cases which were revaccinated for the first time this year were successful. The

majority, however, was not very large—only 29 successful, as against 20 failed. A reference to Table IV will show that the larger number of those who were successfully revaccinated were between the ages of 20—25, while the greater number of those failing were between the ages of 25—30 years.

It will be seen from Table I that success in 1906 depended largely upon whether a case had been revaccinated previously or not. The chances of success as given in the table are equal for cases revaccinated once previously, whether that revaccination was successful or otherwise.

With two previous revaccinations, the chances of success in a third diminishes considerably. And the chance of success in a third revaccination is still more slight if the two previous revaccinations have failed—only 12 per cent of such cases succeeded in 1906. Two of such cases were revaccinated twice in 1906, with an interval of about a month between the operations, without success. One case which had failed four times previously was similarly revaccinated twice in 1906 without success as seen from Table I.

Eleven cases are given as having succeeded at one previous revaccination. In ten out of these, the previous revaccination had taken place nine or more years previously.

Twenty cases are given as failing at one previous revaccination. In thirteen of these the previous revaccination had taken place from five to six years previously, in the remaining seven cases to nine or more years previously. Seven out of these thirteen cases were successful in 1906. Of the cases having two revaccinations previous to 1906, no case succeeded at all the three revaccinations. Only one case succeeded twice in the three revaccinations.

Tables II and III give in detail the data from which Table I was constructed.

Table IV gives the ages at which revaccination was first performed. In the upper column are given those cases which were revaccinated for the first time in 1906. In the column below are given cases revaccinated for the first time in years previous to 1906—these results were got from the medical history sheets. The correspondence between these two columns is not very exact. Every case revaccinated this year below the age of 22 was successful, whereas in previous years the failures below this age were somewhat in excess of the successes. The remaining ages of first revaccination correspond, however, fairly well.

From this table it will be seen that the period of life most favourable to success in revaccination is that prior to the age of 25 years.

Table V deals with the ages at which *second* revaccinations are successful or fail. It will be seen that there is no correspondence whatever

between this and the last table as regards the age at which the second revaccination is successful or otherwise. It will be seen that a second revaccination may be successful indifferently at any age.

Table VI shows a result that is contrary to a commonly-held opinion, viz, the belief that those with good scars will not be as successful on revaccination as those with poor scars. Taking the totals, it is seen that 52 per cent of those with good scars were successful in 1906, whereas only 35 per cent of those with poor scars were successful. This fact was very noticeable when the men who had been revaccinated came up for examination, as a general rule those already having good marks "taking" well, whereas those with poor marks usually failed to take, or were modified cases.

The two classes of "good" and "faint" only have been taken, as being more definite for our purpose than the three headings occurring in the official Vaccination Register of "satisfactory," "doubtful" and "none."

This point of the usual non-success of revaccination in those with poor marks is of interest in view of a common opinion to the contrary. The Army Medical Regulations require that in October of each year revaccination shall be performed upon "all persons who do not show satisfactory marks or other records of successful vaccination or revaccination." The result of the revaccination of most persons without "satisfactory" marks would be failure. This is actually shewn in Table VII, which is an exact copy of the essential details from the vaccination register of this regiment, shewing the cases which were revaccinated in October 1905 in accordance with the above regulation.

With regard to the number and size of the marks, it was not found that these effected the success or failure of subsequent revaccination. A very large number, both of those who succeeded and failed this year, had six or more marks on the two arms. The aggregate number of scars on 49 cases failing in 1906 was 199, the number on 44 cases succeeding in 1906 was 184 scars.

The number of cases dealt with in these tables is not sufficiently large to make any very exact deductions from them. They are, however, sufficiently consistent to enable the following statements to be made —

(1) In adults not previously revaccinated the greater number are successful on revaccination, though this majority is not large.

(2) One previous revaccination, whether successful or not, renders the chances equal of a second revaccination succeeding or otherwise.

(3) In case of two previous revaccinations, successful or otherwise, success at a third revaccination is improbable.

(4) The period of life at which revaccination is more likely to succeed is before the age of 25 years. (This does not refer to the old, only to those not beyond the usual ages of sepoys.)

(5) Those with good scars are much more likely to "take" on revaccination than those with poor scars.

It would be a point of great interest to see how far the above statements apply to those who contract small-pox in spite of being vaccinated.

If the liability to small-pox were the same as the liability to vaccinia on a second vaccination, the above statements might form a useful basis as a guide for those for whom revaccination was especially necessary.

Many of the phenomena of revaccination appear to be erratic and difficult of explanation. The following "personal note" will illustrate this —

I am one of those subjects who do not "take." There are no marks on my arm from the vaccination performed in my infancy. In 1902, I was revaccinated on two occasions in London on account of the epidemic of small-pox then occurring there, without success. This year, 1906, I revaccinated myself on two occasions with an interval of a fortnight between the operations, without success. All those revaccinations were performed on the usual site over the deltoid muscle of the left arm. During this time, I was revaccinating large numbers of sepoys daily. About the time when I revaccinated myself for the second time over the deltoid, I accidentally pricked the third finger of the right hand with a needle with which I had just revaccinated a sepoy. In the course of a day or two a papule developed which duly became a large vaccine vesicle which ran a typical (and from its situation, a painful) course. This has now left a fine oval cicatrix over the dorsum of the second phalanx of the third finger of the right hand. As soon as I recognised this to be an accidental revaccination, I intentionally revaccinated myself over the dorsum of the left wrist. My idea in choosing this site was that possibly a vaccine vesicle might succeed on this favourite site of the small-pox eruption when failing elsewhere. A true "modified" result obtained here, two small vesicles forming on each of the two areas scarified, and running a course *pari passu* with the vesicle on the finger.

My next procedure was to try the effect of revaccination on the back of the wrist on half a dozen sepoys who had just failed on their revaccination. The experiment, however, was not successful, none of the cases "taking" on the wrist. Possibly, revaccination on the finger might have succeeded in these cases, as well as in my own.

TABLE I.

Previous Revaccination	No of cases	SUCCESS IN 1906		FAILURE IN 1906	
		No	Percentage.	No	Percentage
No previous revaccination	47	27	57%	20	43%
One successful previous revaccination	11	5	45%	6	55%
One unsuccessful previous revaccination	20	9	45%	11	55%
Two previous revaccinations, one successful	3	1	33%	2	67%
Two previous revaccinations neither successful	8	1	12%	7	88%

TABLE II

No of Cases	2ND REVACCINATION		1ST REVACCINATION	
	Date	Result.	Date	Result
2	1906	S	1901	F
3	"	F	"	F
5	"	S	1900	F
3	"	F	"	F
1	"	S	"	F
1	"	F	1899	F
2	"	S	1897	F
1	"	F	"	S
3	"	F	1896	S
2	"	F	"	F
1	"	S	1894	F
2	"	F	1893	F
1	"	S	"	F
1	"	F	1892	F
2	"	S	1890	F
1	"	F	"	F

S = Successful

F = Failed

TABLE III

No of cases	3rd REVACCINATION		2nd REVACCINATION		1st REVACCINATION	
	Date	Result	Date	Result	Date	Result
4	1906	F	1903	F	1900	F
1	"	F	"	F	1892	S
1	"	F	1901	F	1890	F
1	"	S	"	F	1896	S
1	"	F	1900	F	1899	F
1	"	S	"	F	1896	F
1	"	F	"	F	1896	F
1	"	F	"	F	1896	F
1	"	F	"	F	1899	F

S = Successful.

F = Failed

TABLE IV

	Age up to 20	Age 20-22.	Age 23-25	Age 26-30	Age 31-35	Age over 35
	3 S	6 S	9 S 4 F	6 S 12 F	1 F	3 F
First revaccination previous to 1906	8 S 11 F	3 S 4 F	1 S 2 F	4 F	2 S 3 F	
Total First revaccination previous to 1906	11 S 11 F	9 S 4 F	10 S 6 F	6 S 16 F	2 S 4 F	1

S = Successful

F = Failed

TABLE V

No of cases	Age 16-20	Age 20-25	Age 25-30	Age 30-35	Age over 35
2	F	S	S		
3	F	F	S		
2	F	F	S		
1	S	S			
1	S				
1	S				
1	S				
1	S				
1	S				
1	S				
1	S				
1	S				
1	S				
1	S				
1	S				

S = Successful

F = Failed

more,
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TABLE VII

Regimental number	Previous scars	Revaccinated Nov 1905
1850	<i>Nil</i>	Failed
2108	"	"
2485	"	"
3006	Faint	"
3128	"	Modified
2420	"	Failed
3160	<i>Nil</i>	Modified
2165	"	Failed
3101	"	Successful
3100	"	Modified
2951	Faint	Failed
2916	<i>Nil</i>	"
3209	Faint	"
3234	"	"
3001	<i>Nil</i>	Modified

SPLENIC ABSCESS IN MALARIAL FEVER

By A. R. S. ANDERSON, B.A., M.B., Cantab., C.M.Z.S.,
MAJOR, I.M.S.

("Les abcès de la rate sont rares chez les malades atteints de paludisme"—Laveran, Paludisme.)

CONVICT No 19237, Hindu male, 25 years of age, was admitted to hospital for fever and enlarged spleen on 18th April 1901, when he had spent 16 months in transportation. About nine months previous to his arrival in Port Blair he had suffered from severe attacks of fever and enlarged spleen in Lahore jail, and on several occasions after transportation had attacks of fever, the spleen remaining constantly enlarged both during and between the attacks. He stated that in 1896, while carrying a heavy weight, he fell and was so bruised by the weight which fell on him, that he was in pain for some days, but the pain and bruising were not noticeably confined to the splenic region.

A few days after admission to hospital marked tenderness, spontaneous pain and slight localised bulging over part of the anterior border of the spleen, accompanied by fever of a low remittent type and unusual appearance of illness and prostration led to the suspicion of abscess of spleen. The diagnosis was confirmed by puncturing the organ with a small aspirating needle, an incision through the abdominal wall over the most prominent part of the swelling made, and about one pint of reddish pus evacuated. The operation presented not the slightest difficulty as the spleen was adherent to the abdominal wall. Free irrigation with sterilised water was made, and, on inserting a couple of fingers to discover the limits of the abscess cavity and to feel for possible neighbouring abscesses, an odourless slough of splenic tissue, 270 grains in weight, was removed. One large ($\frac{1}{2}$ in diameter) and one small drainage tube were inserted side by side, the former for egress of broken down tissue and discharge the latter for irrigating fluid.

Recovery was quite uneventful and so rapid that the man was discharged to labour on 26th June 1901 in perfect health.

During the last five years he has had three or four slight attacks of intermittent fever, but is now, March 1906, as strong and healthy as most convicts of his age, and the scar of the operation is barely perceptible.

Unfortunately microscopic examination of the blood was delayed till after the operation when quinine had been exhibited for several days. No malarial parasites were found.

Convict No 20457, Hindu male, 33 years of age, was admitted to hospital on 29th June 1904 for intermittent fever and enlargement of spleen. Since arrival in Port Blair in December 1900, he had been eight times in hospital for attacks of intermittent fever lasting 2-14 days. Examination of blood shewed malignant tertian parasites. Temperature at first intermitting, 104° F in evening, normal in morning, after a few days assumed a low remittent character, and the patient became quickly emaciated and prostrate. The spleen at the same time became painful, tender, greatly swollen and specially prominent over the upper part of the anterior border.

Exploration with a fine aspirating needle shewing pus, the abdominal wall was incised freely, the spleen found non-adherent though pressing into the incision, some gauze packing placed between the spleen and abdominal wall surrounding the site of the proposed incision into the spleen, the spleen freely incised, and between 1½ and 2 pints of thin mixed reddish and greyish, slightly offensive pus and broken down splenic tissue evacuated. No ponderable slough, as in the first case, could be extracted on digital exploration. Free irrigation with sterile water was performed, the packing removed, and a couple of drainage tubes, as in first operation, inserted into the spleen which continued to be pressed against the abdominal wall.

Under free daily irrigation the wound contracted quickly, and in 2½ months the patient had increased 30lbs in weight, but a sinus 6 inches long extending backwards and inwards towards the spine persisted in spite of various treatments.

In December, as there were several severe cases of highly infective cellulitis in one of the pavilions of the hospital, the man was discharged to the convalescent gang.

About a week later he returned to hospital, with considerable pain in the neighbourhood of the sinus which he attributed to an alleged push. Various remedies for the cure of the sinus were tried, but all proved unavailing. After a month's stay in hospital he had a sudden rise of temperature to 104°, then, after some weeks irregular fever, obstinate vomiting, jaundice, emaciation and coma supervened, and he died pyæmic on 9th March 1905.

The autopsy revealed the usual signs of pyæmia, numerous small abscesses in liver,

congested and sodden lungs, subserous petechiæ, etc. The spleen, 32 ozs in weight, had a thick capsule adherent to the abdominal wall and the surrounding organs. A sinus with slightly sloughy walls extended backwards and inwards through the organ to its posterior border. The heart and great vessels shewed no site from which an embolus might have been detached.

So true are the words heading this article that Morehead in his *Researches on Disease in India*, in writing of splenic disease in intermittent fever, states "abscess I have never seen," Osler in the article on Malaria in Allbutt's *System of Medicine* and Manson in *Tropical diseases* (1st edition) make no mention of the disease, while Marchiasava and Bignami in the *20th Century Practice of Medicine* narrate particulars of one case alone where two splenic abscesses, each containing an infarct, were found on autopsy, but the source of the emboli remained undiscovered. Catrin in an excellent account of this affection in "*Le paludisme chronique*" cites observations from the writings of Hippocrates and Aretæus to prove that abscess of the spleen has been recognised since ancient medical historical times, although the authors quoted did not specifically connect such abscesses with malarial infection. Catrin opined that these abscesses nearly always occur in the subjects of chronic malaria, though not unknown in acute malarial infection. He appears to have been able to collect particulars of only 22 cases. Collin has drawn attention to the possibility of mistaking encysted accumulations of pus, on the surface of the spleen, for abscess of the subjacent organ.

During the past five years 73,991 cases of malarial fever, with 230 deaths, have passed under my review in the convict hospitals here, while 3,446 cases of the same disease, with 5 deaths have been admitted in the same time to the Police Hospital and 512 cases have entered the Andamanese and free hospitals.

Of these 77,949 patients only the two whose cases are above recorded have been recognised during life to be suffering from abscess of the spleen.

On examining the available post mortem records of death from malaria—those of the last 178 fatal cases—I find that three alone were affected with splenic abscess or the condition possibly precedent to such abscess.

In one spleen were several hæmorrhagic infarcts, the source of which could not be discovered, in the second were numerous milary abscesses, and in the third several small abscesses, but in none of the three were there any symptoms causing the slightest suspicion of the condition found on autopsy, nor could puncture have detected it.

A considerable number of authors who write on abscess of the spleen attribute the disease to infarction of this organ. Three of my five cases lend weight to this belief. For, in the first case operated on, a central slough of splenic

tissue was found, in the other case operated on though no large slough was discovered, broken down splenic tissue was abundantly present, while in the third, infarcts were found on autopsy.

In none of these cases could the infarction be attributed to embolism from the heart or great vessels, as these were found healthy in two cases by inspection, and in the third by auscultation.

Autopsy usually reveals in a large proportion of our fatal cases of malaria, especially those complicated with jaundice, intense congestion and swelling of the mucous membrane of the duodenum and petechial spots frequently present in the congested area and in the mucous membrane of the gall bladder. These conditions may be due to the capillary thrombosis found by Barker in the spleen, liver, kidneys, intestines, etc., and a mere increase in the extent of the thrombosis might lead to splenic infarction and abscess. We can all agree with Marchiasava and Bignami's dictum that splenic abscesses are evidently the result of pyogenic infection, but the source of the pyogenic material is not at all evident unless it be that malarial organisms, like *amœba histolytica*, give rise to suppuration.

Catrin states that Grand Mousiel collected particulars of 14 cases recognised during life and operated upon, and of these 11 recovered. Of the two incised by me one was well 5 years after operation and the other survived the operation 9 months, and, had the case been reported 6 months after operation, it would have been claimed as a cure as there seemed small probability of the sinus then left ultimately proving fatal.

For notes on the two cases above related I am indebted to Assistant-Surgeon S N Datta.

CYSTICERCUS CELLULOSÆ OF TONGUE WITH A NOTE ON THE HELMINTHO- LOGY OF ONE OF THE MADRAS JAILS

By C L WILLIAMS, M D, D P H,
MAJOR, I M S
Coimbatore

TAPEWORM of any sort is not a very common phenomenon in human beings in this vegetable-feeding part of the world, and when it occurs it is more usually *T. Mediocanellata* than *T. Solium*, beef being more widely eaten than pork. The encysted form of the *T. Solium*, therefore, which is not a common phenomenon in the human subject anywhere, is a priori not an everyday occurrence in India. I think the occurrence of a *Cysticercus Cellulosæ* of the tongue in a convict in the jail here, therefore, probably worth recording. He complained of a swelling of that organ, which was obviously cystic and about the size of a hazel-nut. It had been noticed about a month when I removed it, and was on

the under surface and left side, near the tip, it shelled out easily but broke before being measured. It would probably be however about $\frac{1}{2}'' \times \frac{1}{3}''$ and contained only one head. I had no doubt it was a *Solium* head, but sent it for further confirmation to Dr J W W Stephens at the Liverpool School of Tropical Medicine, and he very kindly sent it to Neumann, who confirms the diagnosis. My edition of Leuckhart, now a little old, though giving plenty of instances of the occurrence of the *Cysticercus Cellulosæ* in man—most commonly the German—does not mention the tongue. As regards this convict's history, he is a basket-maker and was transferred to this jail from Rajahmundry on the 11-3-05, had been in that jail four months and in his own village in Rajahmundry District ate meat three or four times a week, some of it being pork, and some of that purposely undercooked for the palate's sake. He kept four dogs in his house, to which the entrails and bones, chiefly of the head, of the pigs used to be given raw to eat by the pariahs near by when they slaughtered pigs. These dogs would also eat human excreta. This same man later had a lump, probably a cyst, in his Thigh which disappeared of itself, and on October 2nd, 1905, a small lump, probably a cyst, of four or five months' standing, above one elbow. He is still in the jail and seems quite well. As regards auto-infection no ova were detected in his stools, nor could any history be elicited of tapeworm ever seen by him in his stools. I note that in the July issue of the *IMG* Major Fearnside recorded that he found only 3 prisoners in 1509 or 2% with tapeworm ova in their stools at Rajahmundry, whence, as stated above, this convict came. On the 23rd September of last year I found a *Cysticercus Cellulosæ* also in the brain of a Koravan, *æt* about 45, who died of pneumonia in the jail here. This too was kindly verified by Dr J W W Stephens in the Liverpool Tropical Laboratory. He had no head symptoms and was admitted in good health, and this cyst was only discovered during the routine of the autopsy. It was in the outer part of the left corpus striatum, was about the size of a small pea, yellowish, suppurating and inclined to dry up, and contained one head. The man had been in jail twice before, was a direct committal from the village of Surampatti in Erode Taluq, and was described as an agricultural cooly. He was really a Koravan, however, a wandering gypsy tribe, owners of pigs, and omnivorous, their diet including pork, rats, entrails and various other untempting proteid foods, no dogs in his own house but plenty with his neighbours, and they would come to him when slaughtering, which he did, pigs included, in his own house.

The above two cases suggest a note I have long thought of making on the geographical distribution of intestinal worms in India. In 1894 when Pathologist to the Madras General Hospital, I sent a note on *Anchylostomiasis* as seen there to

the Calcutta Medical Congress. Major Fearnside has written on the great prevalence of worms in the Madras jails of Rajahmundry and Cannanore. But here my very strong impression is that they are almost, if not quite, uncommon, and that Major Fearnside's observations, and therefore inferences, e.g., as regards treatment by *santonin*, do not hold good for all Madras jails. I know it is difficult to prove a negative, yet negative evidence is sometimes of value. Of facts we have the following—

Of 19 consecutive post-mortems in this jail up to 18th January 1906 and one since

No mention of worms in the record	10
Definite record of worms as " <i>nil</i> "	6
Not examined for worms	1
<i>Anchylostomiasis</i>	2
<i>Ascarides</i>	1
	—
	20

It is my custom to examine the washings of the intestines in all cases, and usually the record is made "*parasites none*" or the worms mentioned, as the case may be. One case of *anchylostomiasis* was recorded by the Assistant Surgeon whilst I was on circuit and four of the post-mortems in which no mention is made of worms were also done by him. Supposing the whole of these ten cases contained worms, as is most improbable, inasmuch as in at least the six I did myself, I would not have failed to record them if present, there still remain 30 per cent in which their absence is definitely recorded.

Again, it is a rare thing to give a worm powder in this jail. Last year the total expenditure of *santonin* was only 1 oz 6 drs and much of this was used in the warders' lines for their children. The average population of the jail was 1,186.

Again, in the civil hospital where we get cases of dropsy and *anæmia* such as do not occur in the jail and which consequently call for more frequent microscopic examinations of the stools, during last year, of a total treated of 23,757, ten only were returned as *anchylostomiasis*, of whom five were cured, three relieved, one died and one remained and later died. *Anchylostomata* were also found in two females who died from other causes. Curiously enough nearly all of these had been to Palghat, in Malabar between here and Cannanore, and this District is not responsible for them. So that now, when I see a pale and dropsical wreck in hospital I invariably ask "Have you been to Palghat?" and the answer generally is "Yes."

Finally, of a total of 222,252 treated by subordinates in this District last year, only 8,391 were returned as "worms," and as that is a convenient diagnosis and by no means always verified it probably errs on the side of excess.

The practical result then is that one's general idea that the intestine of the native of India is a helminthological museum, an idea supported, as regards certain Districts by one's self in Madras,

by Major Fearnside in at least two Madras jails, and of course by plenty of other observers in other places, appears to have to be modified so far as Coimbatore is concerned. Certainly when one came to this district one's bias was all the other way, and it is only after two spells here of 18 months each that one is driven to believe that these people are less affected than some other people. Why, I know not. The District is a dry one—rainfall about 20" water of the very hardest standard diet, one of the millets, either ragi or cholam (jowar). I may mention, by-the-by, the very frequent association of trichomonads with anchylostoma eggs in the stools here. Though for the most part dubbed innocuous by helminthologists one cannot help holding them under grave suspicion in connection with more than one case of diarrhoea one has been called upon to treat, occurring, as they sometimes do, in such vast quantities that each field of the microscope is full of them, in all stages of activity.

A Mirror of Hospital Practice.

SURGICAL CASES

By B. CHATTERTON, M.D. M.Ch., (Duc.),

Officiating Surgeon Superintendent, Presidency General Hospital (late Civil Surgeon, Monghyr)

THE following cases are of interest—

I

A CASE ILLUSTRATING THE VALUE OF ANTI-STREPTOCOCCUS SERUMS IN PUERPERAL SEPTICÆMIA

On 4th August 1905, F, a Hindu female, aged 35, a primipara, was brought to hospital with a history of having been four days in labour. Her condition was absolutely desperate, as she was practically pulseless, with cold extremities, a very cedematous vulva from which a most foul discharge was issuing.

While she was being cleaned, strychnine and ether were given, and the injection of normal saline solution into the axilla commenced.

She was anesthetized, and it was found that the presentation was occipito-posterior.

Forceps were applied, but no help being obtained from them after reasonable trial Craniotomy was performed and the child removed as rapidly as possible.

The child was partially decomposed. The placenta could not be expressed and was removed manually and found to be rotten.

Copious intro-uterine irrigation with hot water and Izal was carried out and the patient put to bed.

The following day the temperature rose, and the discharge continuing to be offensive, the uterus which had not contracted at all properly

was systematically scraped out with a blunt flushing curette and plugged.

It appeared, however, that in spite of these measures the woman was already septic.

In order not to make the story too long, she had four severe rigors during the next ten days with continued hiccough, and towards the sixth day violent diarrhoea. She was given five injections of anti-streptococcus serum, each of ten ccs., during the ten days, and made a complete recovery. I am practically convinced that her life was saved by the injection. I may add, that I have now on five occasions, attended or seen cases of puerperal septicæmia, which have been treated by these injections, and all have recovered. This may be a coincidence, but it at least points to the advisability of giving the serum a trial.

II

A CASE OF SURGICAL OPERATION COMPLICATED BY AN ATTACK OF MODIFIED SMALL-POX

On 8th March 1906, a young woman, L, came to hospital with a very large fibroma growing from a broad base from the abdominal wall above the umbilicus.

The growth was beginning to ulcerate and was perhaps becoming sarcomatous. She was operated on the following morning, and the growth was found to occupy the sheath of the rectimuscles, the muscles themselves being pushed aside.

The tumour was about the size of a fairly large melon. Beyond the fact that there was a good deal of hæmorrhage, there was no special point about the operation. A gauze drain was left in the upper angle of the wound, as the cavity left was of considerable size.

The following day she had a temperature of 100° and had a lot of papules on her forehead, which were at first thought to be mosquito bites. The next day, however, there was no doubt, but that the patient had contracted small-pox. She went through a modified attack of the disease and beyond the fact that in the upper $\frac{1}{3}$ of the wound the stitches cut through, made an uninterrupted recovery from both her ailments and was discharged cured on 27th of the month, having been in all nineteen days in hospital.

III

REMOVAL OF INTRA-ABDOMINAL GROWTH WITH RESECTION OF INTESTINE RECOVERY

This case is chiefly of interest from a surgical point of view.

A woman, D, Hindu, age 50, was admitted on 21st February 1906, suffering from an abdominal tumour.

Examination showed it to be large, solid, and by means of careful uterine examination, aided

by a sound, it was decided that the tumour was not connected with the uterus.

The abdomen opened on 25th March 1906 and the tumour exposed. It was found to be adherent to the parietal peritoneum over the whole of its front aspect, on separating these adhesions there was a considerable amount of hæmorrhage. The incision was then enlarged and the tumour with intestine attached was delivered outside the abdomen. It was growing between the layers of the mesentery and was about the size and shape of a small Rugby football.

Large mesenteric blood vessels were passing into it in one place which was converted into a pedicle ligatured and the tumour removed.

It was found that in effecting this the blood supply of about eleven inches of small intestine had been seriously interfered with, it therefore became necessary to remove this amount of intestine and to perform an end to end anastomosis. This was done by means of Lane's clamps and a Ball's decalcified bone bobbin.

The mesentery was simply wrapped over and brought together with a few points of catgut suture.

Two smaller smooth swellings growing in connexion with the cæcum and splenic flexure were found, but the patient could have stood no more, so the abdomen was thoroughly washed out with hot water, in which a small proportion of adenaline chloride solution was mixed, and the abdomen closed.

The wound was ten inches long. The washing out of the abdomen with saline and adenalin produced a very marked improvement in the condition of the patient.

Not to prolong the narrative unduly, the abdomen was distended for two days. This condition was treated by the passage of a long tube and turpentine enemata.

Immediately after 48 hours had passed, she was given diachm doses of sulphate of soda every hour until the bowels moved.

She was most carefully nursed, the whole hospital staff taking two hour watches in turn, and so far she has made what may be called an uninterrupted recovery. She sits up and her temper has become very bad, as indeed, it has been throughout.

A tumour which feels like an enlarged spleen can be felt, and another tumour in the right iliac fossa.

I have not had opportunity of having the portion of the tumour which was preserved, microscopically examined, but hope to do so later.

The case, I think, illustrates what careful nursing will do, and emphasizes the need which is felt in all large municipal hospitals for the presence of a really high-class matron, herself a trained nurse who could devote herself to nursing the many really bad cases so often met with and to teaching others to nurse also.

ON THE SURGICAL TREATMENT OF PROSTATIC DISEASE

By ERNEST F. NEVE, M.D., F.R.C.S.,

Surgeon to the Kashmir Mission Hospital

In the majority of cases of prostatic disease it is retention of urine which first compels the patient to seek medical aid. No care can be too great in a case of this kind, to ensure absolute asepsis in passing a catheter. The special danger comes when it is necessary to repeat the operation day after day and especially when the patient has been taught self-catheterization, for even with the most intelligent, in some way or another, septic inoculation of the urine is apt to occur. The risk is almost directly proportionate to the length of time during which the catheter has to be used.

Not a few patients have a prostatic crisis, are skilfully treated and perhaps need to have a catheter pass once only, and have no return of retention. Others less fortunate may require treatment for some days and then recover, although perhaps subsequently obliged to always rise once or twice in the night. Such patients should, however, be supplied with a rubber catheter in case of emergency in the absence of medical aid.

Even where the urine has become infected, careful catheterization and washing of the bladder and the use of antiseptics, such as urotropine (or its cheaper equivalent hexamethyltetramine) are not unfrequently followed after a time (days or weeks) by cessation of all urgent symptoms.

In a certain number of cases in which the patient has come to me with aggravated symptoms of septic cystitis, a prompt perineal cystotomy with drainage has given immediate relief.

G. D., *æt* 60, admitted August 22nd, 1900, suffering from retention, only partially relieved by catheterization, pain, fever and hæmaturia. Operation, August 24th. Steady improvement. Temperature normal on 28th. He was dismissed September 6th, and was then able to pass urine without discomfort.

R., *æt* 75, admitted November 11th, 1900. Retention urine foul. Tongue coated. Fever. Operation December 5th. Ten days later his general health was much better, his tongue cleaner and appetite good. The tube was removed December 20th. He was able to pass all urine by urethra on the 21st and was dismissed December 28th.

Nothing can be simpler than the operation. Cut on to a grooved staff and without withdrawing the knife pass a director along the side of the blade into the urethra, withdraw the knife and pass a metal tube with calibre of half an inch into the bladder. This tube should be rounded at the vesical end, with an eye in the side, like a catheter. This enables it to be easily passed. The effect of the pressure of a large tube like this may account for the

continued relief from prostatic obstruction even after its withdrawal

Where retention is a recurring symptom, double vasectomy may be of distinct benefit. M. B., *æt* 80. Admitted October 2nd, 1899. Daily retention and catheterization. I excised two inches of vas deferens on each side. The patient was dismissed on the 23rd, able to pass his urine without difficulty.

An alternative operation is to do a double castration. In my opinion the best way of doing this is not through one incision in the scrotal raphe, where the risk of oozing and of urinary contamination exists. I prefer to have each testicle pushed right up to the external abdominal ring and cut down upon in that position. The incision required is very small and the wounds are well above the septic area.

S. D., *æt* 60, has had difficulty in passing urine during the past three years. He was admitted June 9th, 1899, suffering from retention. I excised both testicles. The stitches were removed on the 17th. Both wounds were quite healed. He left on the 23rd with no more trouble about retention. Although castration is probably more efficient than vasectomy and the operation is almost as simple, still it is a distinctly more serious procedure and the mutilation is a great drawback even in old people.

By one or other of the above operations improvement is generally obtained. But in a certain number it is not maintained. By doing a prostatectomy we may get a radical cure. Unfortunately it is a rather severe operation and apt to be followed by hæmorrhage and shock. I think, it should be reserved for cases which have relapsed after other methods, or for those in which it is difficult to pass a catheter or where the patient is anxious for a radical cure even at somewhat increased risk.

In the following case, with my present experience, I should have done a prostatectomy at his first admission. B. B., *æt* 66, admitted July 1st, 1901, suffering from retention. There was difficulty in passing a catheter owing to the size of the prostate and a tendency to hæmorrhage. Perineal cystotomy was done for drainage. This gave relief, but on removing the tube on the fourteenth day, retention at once supervened. The tube was replaced for ten days and on removal the urine was passed by urethra. The patient was dismissed on the 9th August, much improved. He was readmitted June 12th, 1905, suffering from absolute retention. A catheter could not be passed. I was absent at the time, so Dr. W. F. Adams kindly did a Cock's operation and put in a long tube, giving immediate relief. After a fortnight the tube was removed but retention at once supervened. On July 29th, as the tube still had to be worn, I opened the bladder above the pubis and found a projection of the prostate, the size of a small orange, and in the pouch behind was a small stone like an almond. I enucleated the gland

by Fieyler's method. There were two lateral masses and one central. The bleeding was considerable. The patient made a good recovery, and by the 1st August was able to pass some urine by urethra. He was dismissed on the 20th. This was undoubtedly a case of adenomatous enlargement. A portion of the urethra was included in the mass removed.

If all cases were as simple as this, it would be good practice to advise prostatectomy whenever the symptoms of urinary obstruction were at all persistent. But it must be borne in mind that the enlargement of the prostate may be of a different character and that enucleation cannot always be performed with the same ease. It may be that in the one case we have a distinct adenomatous condition and that in the other there is simple hypertrophy of the gland. This is illustrated by the following case. A. M., *æt* 60, admitted August 24th, 1905, suffering from retention. On the 28th I operated by the supra-pubic route. The prostate was found to form a projection in the bladder. It was extremely hard and with great difficulty I enucleated from the left lobe a portion about the size of a small walnut. There was a good deal of bleeding. The patient was dismissed Sept 27th, and was then able to pass urine naturally. In this case the manipulation was so difficult and had to be so forcible that I judged it wiser to be content with partial removal and even this might have been too severe for an older and feebler subject.

To sum up. In the surgical treatment of persistent prostatic obstruction, I think, the best routine method is to do double vasectomy and at the same time if there is severe cystitis do a perineal cystotomy.

Prostatectomy should in my opinion be reserved for two classes of cases. Firstly, those in which permanent relief is not obtained by the above measures. Secondly, early prostatectomy should be done when there is unmistakable evidence of considerable projection of the prostate into the bladder, causing marked obstruction and rendering catheterization difficult or impossible and especially if there is a tendency to hæmorrhage or a suspicion of the existence of a calculus in the prostatic pouch.

THREE UNUSUAL CASES OF HERNIA

By W. J. WANLESS M.D.,

Miraj

I—A case of Traumatic Inguinal Hernia resulting from injury inflicted by horn of a bullock

Case No. 2511 was admitted to the Presbyterian Mission Hospital, Miraj, in 1902.

The patient was a strong, healthy Hindu woman, married, about forty years of age. She gave a history of having been goled in the groin by a bullock some four or five years previously. The wound healed after considerable

suppuration, and was followed by the development of a pear-shaped swelling, and which has increased steadily in size until at present it is about the size of a large foetal head at term. The patient experiences considerable inconvenience from the presence of the tumour. She also complains of constipation and is greatly troubled with flatulence. She experiences frequent colicky pains in the right lower quadrant of the abdomen. The neck of the tumour lies over the saphenous opening and Poupart's ligament, and the whole tumour is covered by healthy skin, except at the summit, where there is a scar about twice the size of a rupee representing the wound inflicted by the horn of the bullock. The contents of the swelling appear to be mainly bowel and which is only partly reducible by taxis. There is an opening below Poupart's ligament admitting three fingers and through which the hernia mass can be partly reduced. A thickened mass can be felt in this ring and which appears to be adherent omentum or mesentery, since it does not collapse on pressure. Cough impulse and gurgling on pressure are marked. The abdomen is distended and tympanic.

Operation—After the usual preparation and chloroform narcosis, the tumour was opened by a longitudinal incision over the summit. The sac opened and the contents recognized as bowel consisting of the ileum cecum with the appendix and ascending colon and considerable omentum. The omentum was thickened and adherent to the ring of the neck of the sac and required ligation and removal. The meso-colon was also much thickened and in the colon adherent to the sac near the neck. The small intestine was constricted and its wall thickened about six inches above its junction with the ileum. Its lumen did not appear sufficiently constricted to warrant an attempt to enlarge its calibre. After careful separation of adhesions and the division of several bands between the neck of the sac, omentum and colon, the bowel was successfully reduced. The redundant skin was cut away, an elliptical incision transversely placed, the sac cut away and sutured with chromicized catgut. The fascia was then sutured over the sac at a lower level and the skin closed with interrupted sutures of silk worm gut without drainage.

Convalescence was uninterrupted, the wound healed per se and the patient discharged on the 20th day.

She still complained of some colicky pain when gas accumulated though much less than formerly, indicating that it would have probably been better had the constriction in the small intestine been divided longitudinally and sutured transversely as in the Hencke-Mikulicz operation for pyloric stenosis.

The patient was advised to report should she find serious inconvenience from gas accumulation, but so far has not been heard from.

II—A case of large Lobulated Umbilical Hernia in which a filigree mat was used to strengthen the abdominal wall and prevent recurrence. Operation. Recovery.

Case No. 3647 admitted in 1903. The patient, a healthy married Hindu woman, about 40 years of age, and the mother of four children, was admitted with a reducible pendulous tumour of the umbilical region, and when distended spread itself over the whole central and lower abdomen. With the patient in the erect position the tumour measured 19 inches in its vertical circumference, i.e., from midway of the umbilicus and ensiform cartilage and to midway between the umbilicus and pubis, points representing the junction of the tumour with the abdominal wall. On assuming the recumbent posture the contents could be completely reduced after considerable manipulation.

The most remarkable feature of the emptied sac was the presence of a number of distinct cavities apparently communicating with a common cavity and connecting with it by means of constricted ring-like openings. These could be distinctly felt by the fingers when invaginating the skin. The umbilical ring could be made out. It admitted four fingers and corresponded in size to the other rings which were more readily made out.

Operation—After the usual preparation and under chloroform narcosis the mass cut down by a large elliptical incision through the skin. The sac was opened and the thickened sac together with the ellipse of skin were cut away. The sac was cut away close to the umbilical ring, and when removed represented some five distinct sub-sacs or cavities forming a series of communicating rings between their cavities and communicating with the original sac at the umbilicus by a single opening. The rings were all dense and firm in consistency. The lining of all the cavities (peritoneum) appeared to be continuous. The rectus muscle had practically disappeared and was represented only by the sac of the hernia which appeared to have been developed from the sheaths of that muscle.

The umbilical ring was paired and closed with silver wire after first closing the peritoneum with catgut. A silver filigree about 5 by 7 inches previously woven for the purpose was then sutured in front of the closed umbilical ring with catgut, and the skin closed over this with silk worm gut without drainage. The filigree was used in the manner suggested by Dr Willard Bartlett, *Annals of Surgery*, July 1904, p. 47.

The large skin wound healed per se and the patient left the hospital on the 21st day.

I found the method of weaving the filigree and its application extremely simple, and from the reports by Dr Bartlett, I feel confident that the result will be entirely satisfactory. The filigree was used in this case as the patient was a labouring woman in whom the necessity of

adopting a method most likely to prevent recurrence was clearly apparent, hence the resort to the use of the filigree implantation method of Battlett

III—A case of Strangulated Umbilical Hernia with Perforation Operation Recovery

Case No 2755 Female, aged 21, Hindu, multipara Seven months prior to admission a swelling appeared at the umbilical region and has slowly increased in size until it has reached the size of a medium-sized orange The swelling was always reduced spontaneously until three days before admission when it suddenly became painful and since which time the bowels had not moved On admission the swelling was found to be tense and painful and the skin over it livid in colour The base is indurated and an indistinct sense of fluctuation was made out in the right side where also it was tympanic on percussion There was a slight constriction at the base The bowels were confined, but there was no vomiting A diagnosis of strangulated hernia was made and the patient prepared for operation

Operation—Under chloroform narcosis a vertical incision was made over the swelling beginning half an inch above the base of the swelling and extending to the same distance below On exposing and opening the sac the bowel was found slightly adherent, it was freed and half an ounce of blood-stained fluid, with a marked fecal odour escaped A knuckle of gut about four inches in length was constricted above its mesentery The whole loop was dark in colour, but had not lost its gloss except at three small points on one side in one of which there was a pin-head perforation, this was immediately closed with a single mattress stitch The bowel was then repeatedly cleansed with salt solution and after dividing the constricting ring it was released and watched for a few minutes while the margin of the ring was being freshened and sutures placed Colour rapidly improved in all but the small points referred to, and these were turned in and buried by a double row of Lembert sutures After further irrigation the bowel was replaced in the abdomen and the peritoneum sutured with ordinary catgut and the previously placed celluloid mattress sutures tied The skin was closed with silkworm gut and a small gauze drain inserted at the upper angle and a standard dressing applied The gauze drain was removed on the second day when also the bowels moved after several small doses of calomel and magnesia

The patient developed a slight catarrhal jaundice on the fifth day and on the sixth day a small stitch abscess at the site of the drain Except for slight superficial suppuration the wound healed by first intention The jaundice disappeared in the course of five days, and the patient was discharged cured at the end of the second week

A TYPHOID FEVER CASE (PARATYPHOID) IN THE JAIL AT FEROZEPOR

UNDER CARE OF LT COL ADIE, I M S

REPORTED BY WALI MOHAMMAD,

Hospital Assistant

PRISONER GUL SADIN, aged 26 years He entered the jail at Bannu on 1st March 1903 in good health, and after transfers to other jails (D I Khan and Mooltan) he came here on 9th November 1904 in good health He never had fever of any kind in jail, but had two or three attacks of simple fever for a short time at home He first felt unwell on 24th May 1905, complaining of uneasiness all over his body, and headache On 25th May 1905 he got fever and lost about 10 lb between 14th May 1905 and 28th May 1905, the temperature was not above 102.4° and after four days, i.e., on 29th May 1905, it went to normal and remained on the same degree till the 1st of June 1905 Blood film taken now and subsequently was negative for malaria. There were the ordinary symptoms of fever

In the second week the temperature was high and varied between 101° and 103° in the evening and 100° and 103° in the morning, pulse varied between 82 and 116

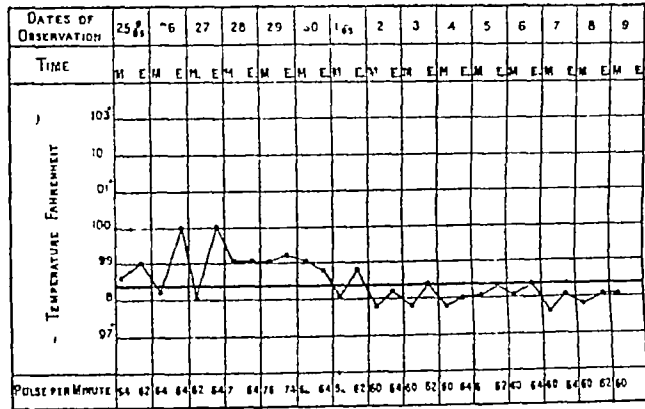
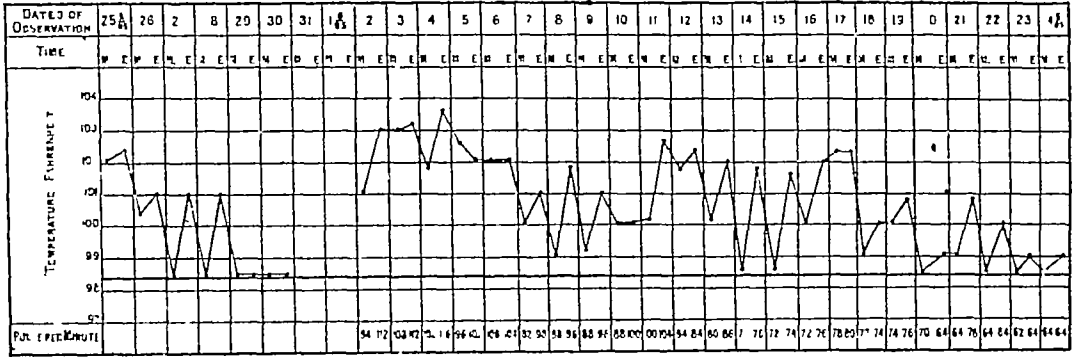
The tongue was coated with yellowish fur There was constipation at first, but after getting one ounce of castor oil on 2nd June 1905 he had two or three loose motions of a pale colour every day during this week Blood film again negative for malaria On the 5th June a sample of blood tested at Kasauli was found negative to Typhoid and Malta Fever On the 7th June there appeared a suspicious spot near the axilla and left mamma In the third week (8th to the 14th June 1905) the temperature varied between 100° and 102.6° in the evening and 98.6° and 101.8° in the morning, pulse 72 to 104 Diarrhoea was present for the whole week, three or four loose motions of a pale colour every day Tongue was coated with brown fur General health weak

On 12th June 1905 many spots appeared on the chest and abdomen They seemed characteristic typhoid spots—small, round, slightly elevated, papular, disappearing on pressure, coming out in crops, situated on front of chest and abdomen

Blood was sent to Pasteur Institute again with negative result On the 13th and 14th some more spots appeared of the above kind on the chest and neck His skin was of rather fair colour and particularly free from ordinary spots He is a Pathan In the four weeks the temperature was between 90° and 102.4° in the evening, and 98.4° and 102.4° in the morning, pulse between 72 and 80 The old spots began to disappear but some few new ones appeared He had one or two loose motions for two or three days but afterwards diarrhoea stopped Tongue was covered with brown fur in the middle but the sides and tip were clean Treatment was general fever mixtures merely, and occasionally an astringent for diarrhoea

In the fifth week the temperature was between 99° and 100° in the evening and 98° and 99° in the morning. Pulse between 62 and 72, bowels regular, tongue moist and clean, chest normal. Throughout the case, the spleen could not be felt. In the sixth week the temperature was nearly normal evening and morning. The spots had disappeared entirely and the skin kept clean and smooth.

Mackie's interesting paper on Paratyphoid *Lancet* 23rd, 1905, p 874. The man was seven months in this jail before the attack, so he must have contracted the disease in the jail. There has been no similar case. Important points are the negative Vidal tests, the appearance of typhoid but not the "typhoid state," good spots, some diarrhoea, spleen not enlarged, and the iliac sequela.



In the seventh week blood was sent to P I, Kasauli, again, but result negative.

In the eighth week he got cough without fever.

In the ninth week there was no cough, but on the 22nd of July he complained of pain in the right iliac region and on 25th there was a well defined hard mass in the right iliac fossa as large as a fowl's egg. Bowels were slightly constipated but became regular after half a dose of castor oil and enema. The pain and hardness remained for the whole week.

Tenth week — Hardness in fossa as before, but on 31st July 1905 pain in the hardness increased without fever, and on the 1st of August 1905 the hardness became smaller and more circumscribed. Eleventh week same symptoms as in tenth.

About 24th August 1905 the mass appeared smaller but there is still (1st November 1905) a firm, hard, fixed mass the size of a pigeon's egg.

Remarks by Medical Officer — Notes read over and found correct.

This case is sent as there has been a good deal of interest shown lately in typhoid fever and its varieties. See *Lancet*, March 4th, 1905, and

THE GENUS *HÆMANGÆ*. (LAVÉAN).

The following table gives the known species —

NAMES OF THE <i>HÆMANGÆ</i> .	HOSTS	DISTRIBUTION
MAN, MAMMALS		
<i>Hæmangæ malarie</i> , Laveran, 1880	Is the causal agent of malaria and only observed in man transmitted by mosquitoes (genus <i>Anopheles</i>)	
Three varieties the <i>H. Parva</i> , <i>Tertiana</i> and the <i>Quartana</i>		
<i>H. Kochi</i> , Laveran, 1899		In several species of monkeys in Africa
<i>H. Melanophora</i> , Dionisi, 1899		In the <i>Miniopterus Schreibersi</i> and probably in other species of bats in Italy
<i>H. Vassalli</i>		<i>Sciurus griseimanus</i> (squirrel) Annam
BIRDS		
<i>H. Danilewskyi</i> , Grassi and Felitti, 1889		In a great number of birds in all parts of the globe.
<i>H. relicta</i> , Grassi and Felitti, 1891		In a good number of birds, particularly the sparrow, in Italy, Spain, Algeria, India, &c. The parasite is propagated by the mosquito <i>Parus major</i> , Lorraine
<i>H. Majoris</i> , Laveran 1902		<i>Athene noctua</i> (owl), <i>Synium aluco</i> , Italy and France.
<i>H. Ziemanni</i> , Laveran, 1902		
TURTLES		
<i>H. Melchiorovi</i> , Simond, 1901		<i>Trionyx indicus</i> , India
<i>H. testudinis</i> , Laveran, 1905		<i>Testudo pardalis</i> , Transvaal
OROCODILIA		
<i>H. Simondi</i> , Castellani and Willey, 1904		<i>Hemidactylus Leschenaultii</i> , Ceylon

Indian Medical Gazette.

JUNE, 1906

JAPANESE MEDICAL ARRANGEMENTS
AROUND PORT ARTHUR

THERE has been considerable difficulty in getting at the truth as to the success or otherwise of the medical arrangements of the Russo-Japanese Forces in the recent war, and this will remain until true official accounts are published. Meantime we can only get side glances at the real facts from the numerous books published since the conclusion of the war. In one of the most interesting of these, "The Siege and Fall of Port Arthur" by Mr. Richmond Smith, a chapter is devoted to a slight sketch of the hospital arrangements in the Japanese army investing that fortress.

Mr. Richmond Smith states (p. 268) that the casualties of fighting during the siege amounted to 65,000, the number put out of action by sickness ran to nearly 25,000 more. The proportion of sick to killed and wounded here given is very low compared with figures given by historians of other great wars, but it must be remembered that in no previous war were the methods for killing and wounding so barbarous or so brutal. The introduction of enormous 11-inch Howitzers into the siege trains, the free use of dynamite for explosions and in the murderous form of 'bombs' or hand-grenades were new and brutal features in this siege, and enormously increased the proportions of killed and wounded yet in spite of that the ratio of sick appears wonderfully low. Mr. Richmond Smith speaks highly of the skill of the Japanese surgeon and the fine modern equipment of their hospitals, but in the locating of these hospitals and in their surroundings there was seen a lamentable ignorance of the first principles of hygiene "that is to be found all over Japan, and in some cases to a disgraceful extent." "It is possible," continues Mr. Smith "that the insanitary state of hospitals in rear of the lines at the front may not have had the same deadly effect similar conditions would certainly have had upon the wounded of any Western army. However that may be it does not help a wounded soldier much to have his face and hands covered with flies when he is unable to brush them off, simply because the authorities located the hospital

within 50 yards of the horse lines and even closer to an extensive series of kitchens. In none of the hospitals was proper attention paid to sanitation."

The hospitals themselves were clean and good, but the surroundings were insanitary. The recovering of the wounded from the battlefield was difficult and in many cases impossible. Neither side during the siege respected the Red Cross, and stretcher-bearers who went out were only mowed down and added to the list of killed and wounded. Mr. Richmond Smith remarks on the wonderful ability of the Japanese soldiers to bear pain, fortunately too considering the rough method—often the only possible method—of getting the wounded into the field hospitals. But what is more surprising in Mr. Smith's account is the little use that was made of chloroform or other anæsthetics in the stationary hospitals in the rear. He says he saw many operations performed, many times, which with us would not be attempted without an anæsthetic. "Sometimes the operations were as serious as amputations, or the opening up of a bad shell wound, etc." "During the setting of broken bones and operations necessary in flesh wounds anæsthetics were scarcely ever used." Usually during the operation the patient remained absolutely still and smiled, though often one could see from the ashy pallor which overspread the face that the suffering endured was very great.

That there is something racial or more probably dietetic in the absence of typhoid and other camp diseases in the army around Port Arthur is very probable. The Russians inside Port Arthur appear to have suffered severely from virulent typhoid. One other point in favour of the Japanese is that they have an admirable control over their thirst, and all the soldiers wisely avoided any water over which a notice that it was unfit for drinking was placed.

Beri-beri was the disease the investing army chiefly suffered from—in two months, July and August, beri-beri put out of action some 15,000 men. This is attributed by Mr. Richmond Smith to bad rice, rice which had fermented owing to heat and bad storage. In the end of July the ration was changed to half wheat and half rice (in accordance, we may add with the "nitrogen starvation" theory of the Japanese navy), but no good resulted till care was taken to protect both kinds of food from the effects of the weather.

The medical and surgical history of this war when it is written will be of the greatest interest and of the utmost importance to the army medical officer.

DIPHTHERIA AND ANTITOXIC SERUM

THE daily growing conviction that it is to serum therapy that we are to look for a substantially reduced mortality from specific affection should gain considerable strength from the diphtheria statistics of the hospitals of the Metropolitan Asylums' Board and those of the large provincial towns of England and Wales.

Diphtheria cases first commenced to be admitted into the Metropolitan Asylums Board Hospitals in the year 1888, but it was not till the year 1894 that treatment with antitoxic serum was started therein. The mortality rates in these hospitals, calculated according to the Registrar-General's formula (*viz.*, by dividing the deaths, multiplied by 100, by half the sum of the admissions, discharges, and deaths for the year), give for diphtheria an average annual mortality per cent during the years 1894-1904 of 15.8 as against 37.3 for the years 1888 to 1893. The fall has been steady and gradual, and commenced with the introduction of the treatment. The highest mortality in any one year previous to 1894 was 59.3 per cent while in no year since has the rate been higher than 22.8 (in 1895), the lowest being 9.7 (in 1903).

Regarding provincial statistics conclusions cannot be as definite as those of the metropolis, owing to want of definite information as to the precise date upon which the antitoxic treatment was commenced in the respective towns, as also the relative extent of its employment in each. Such deductions as can be gleaned, however, are strongly corroborative of the value of the method of treatment. Dr. Henry Armstrong has published in *Public Health* (January 1906) a series of tables compiled from (a) statistics of notified cases of the disease furnished by medical officers of health of thirty-one large towns, (b) the Registrar-General's annual summaries of deaths, and (c) the annual reports of the Metropolitan Asylums' Board, with a view to demonstrating the annual extent and fatality (actual and relative) of diphtheria in England and Wales since the introduction of anti-diphtheritic serum in the treatment of the disease (1894-1904). From

these tables it will be seen that in the thirty-one towns the mean death-rate per cent to cases of diphtheria has fallen steadily, and for the most part gradually, from 30.5 and 33.1 in 1894 and 1895, respectively, to 17.7 and 18.0 in 1903 and 1904, respectively. The individual mortality rates of the respective towns indicate that during the first four years of the period the diphtheria death-rate in one or other of seven of the towns reached a maximum of from 50.0 to 61.1 per cent, and that during the last four years it fell in four towns to a minimum of from 6.5 to 3.6 per cent.

During the period 64,498 cases (with 9,522 deaths) were treated in the hospitals of the Metropolitan Asylum Board and 95,692 cases (with 18,869 deaths) were notified in the thirty-one towns, giving a total of 160,190 cases with 28,381 deaths or a mortality rate of only 17.7 per cent.

Current Topics.

OUR ASSOCIATE EDITOR FOR MADRAS

It is with much regret that we have to announce the retirement from the service of Lieutenant-Colonel John Matland, M.D., of the Madras Medical Service. He entered the service in March 1876, and spent most of his service in civil employ, Madras. He was for many years Professor of Surgery in the Madras Medical College, more recently he was made Principal of the Medical College. For many years past he has taken a keen interest in the welfare of the *Indian Medical Gazette*, of which he has been the Associate Editor for Madras. He is a very able and experienced Surgeon, and has written on many subjects, especially on elephantiasis, on which he has published a book.

We very much regret to lose his services, and wish him many happy years of retirement.

We are glad to be able to announce that Captain J. W. Cornwall, I.M.S., D.P.H., has consented to become Associate Editor for Madras.

CAPTAIN GREIG'S REPORT ON GERMAN METHODS OF TYPHOID PROPHYLAXIS

THERE is much of interest in the report of Captain E. D. W. Greig, M.B., B.Sc., I.M.S., who was deputed by the Secretary of State to report on the methods employed in the campaign against typhoid in Germany.

Captain Greig reached Berlin in September 1905, and first studied the methods in use in the Kgl. Inst. für Infektionskrankheiten, he afterwards visited similar institutes in other towns.

We quote *in extenso* the following portions of the report, which cannot be well summarised —

"FACTS OF IMPORTANCE IN CONNECTION WITH ANTITYPHOID MEASURES

(a) Typhoid fever is spread to a large extent by the bacilli being directly carried from the sick to the healthy, *eg*, infection of food, the use of contaminated eating and drinking utensils, etc. In this form of so called 'contact' infection the epidemic has a gradual onset and prolonged course. Should the bacilli gain access to a water supply used by a number of persons, then a large number of cases occur simultaneously — the so called 'explosion epidemic'. The workers in Germany have found this latter mode of infection of comparatively rare occurrence as compared with the former.

(b) Living bacilli may continue in the faeces and urine for long periods after the fever has ceased, and persons who give no history of previous attacks of typhoid fever, but who have been in contact with typhoid cases, may also harbour the bacilli in their stools. This group of cases is a very important one from the prophylactic point of view, they are the 'bacilli carriers' of the Germans. These individuals are, in fact, 'reservoirs' of the parasite and play an analogous part to the wild game in Nagana, which harbour the trypanosomes without any apparent signs of disease.

(c) The disease may run a very mild course, particularly in young children, and thus a number of cases may escape observation. The detection of these cases forms a very important part of the antityphoid work.

(d) A disease closely resembling typhoid fever, clinically, but caused by a totally distinct organism — *B. paratyphosus* — may occur at the same time as typhoid fever.

IT IS NECESSARY TO ORGANIZE SCIENTIFIC INSTITUTES NEAR THE TYPHOID EPIDEMIC TO PUT INTO PRACTICE THE ABOVE PRINCIPLES

The German Government has founded eleven institutes, each with a superintendent and two or three trained scientific men, as well as one or two attendants, for the antityphoid campaign in Alsace Lorraine. These institutes are fully equipped for the scientific work required. They are chiefly engaged in the prevention of the spread of typhoid among the civil population. The military population, which is a large one, has a similar organization, and, the conditions being much more favourable for carrying out the antityphoid measures, the results show a satisfactory reduction of typhoid fever among the troops.

Each institute has its defined area of work, but they also keep in touch with one another. The extent of the area of work is determined by the density of population, *eg*, Trier, which is situated in a sparsely populated district, has a very extensive area, while those of Saarlouis, Saarbrücken and Neunkirchen are small, the population being very dense near these places. The institute receives its material from the various medical men in charge of the cases, and the members go out into the villages and towns with the district medical officer of health and investigate the details of the origin of the epidemic. As far as possible, each epidemic is traced back to its source. It is necessary to determine (i) whether cases are imported ones, (ii) whether the infection is carried by water, (iii) whether carried by food, (iv) whether carried by men affected by typhoid fever, *eg*, family epidemic, (v) whether a local focus of endemic typhoid, so-called 'typhoid house,' exists. In carrying into practice these lines of investigation certain lists kept in every village are examined in the first instance, these are (a) list kept by police of reported arrivals in the village, (b) the list of attendance at the school, (c) the sick list (*Krankenlisten*), (d) the list of deaths reported. From these lists valuable information is obtained, which forms a starting

point for further investigation. It is generally found that the actual number of cases of typhoid fever far exceeds that which has been reported. The water-supply, milk-supply and general sanitary condition of the village are carefully inquired into, and the result of these, along with the result of the bacteriologic investigations, is entered in a special form, which is called *Fragebogen*, which contains thirty nine headings, which are classified under (1) general, *ie*, position and character of place, water and milk supply, etc., (2) special, which contains details regarding patient, the disinfection carried out and the result of the bacteriologic investigations, (3) result of the case, whether it ended in death or recovery, the results of final bacteriologic investigation, and what sanitary improvements have been carried out.

The suspected cases having been picked out by the help of the information obtained from the above mentioned sources, it is next necessary to examine the blood, faeces and urine of each at the laboratory. The blood is taken in capillary tubes. For the urine and faeces, special glass tubes, fitted with a metal spoon in the cork and carefully enclosed in a tin and wooden box, are left at the house. Directions are given to the nurse or friends to place three or four spoonfuls of the faeces in one tube, which is packed and the box carefully labelled, some urine is also placed in another tube. These are forthwith despatched to the institute. It is important for the investigation that they should be as fresh as possible. When these are received at the laboratory they are examined at once. The result of the examination is communicated to the medical man in charge of the case and the medical officer of health, who have the necessary disinfection and isolation carried out. When possible the isolation is carried out in special hospitals, otherwise the medical officer of health gives the necessary instructions to the friends for the isolation of the patient in the house. For the purposes of disinfection the liquor creosoti saponatus of the German Pharmacopoeia is used. The eating and drinking utensils are immersed in it. The stools and urine, which are received in special vessels, are mixed with it. After the patient is entirely free from fever, the stool and urine are examined three times at intervals of ten days, and the patients are not allowed to leave the hospital until the result of the bacteriologic investigation shows them to be free from bacilli. It is found necessary to do so three times, as relapses are not infrequent, especially in the fourth week of convalescence, in which case the examinations have to begin afresh.

We need not here quote in full the technique for the examination of material from suspected cases, as this is a purely laboratory routine.

Captain Greig concludes his valuable report as follows —

"The above is a description of the routine examinations made at the institutes. In addition to the urine and faeces it may occasionally be necessary to examine the expectoration from the lungs, pus and post mortem material. The procedure is exactly similar to that adopted in the examination of faeces.

To determine the presence of typhoid bacilli in the blood, it is necessary to take about 5 c.c. from a vein and add to it a large quantity of sterile bouillon to neutralize the bactericidal substances present in the blood.

The determination of *B. typhosus* in water is not very satisfactory.

The above is an outline of the methods adopted in the campaign against typhoid in Germany.

It will be readily seen that in a civil population the practical difficulties are enormous. Isolation cannot be carried out in many cases, and the disinfection of the urine and faeces must be left in the hands of the individual himself, and whether the instructions are implicitly followed is at times questionable. So under these

circumstances the progress must be slow. On the other hand, in the army it ought to be a simpler matter, because there the individuals are constantly under observation and discipline. It is a matter of common knowledge that to send a person harbouring the parasites of disease back among a number of uninfected individuals is a sure method of lighting up fresh infection. The danger of typhoid infection is that the individual, although appearing perfectly well, may harbour the bacilli and so infect others. The point of importance to remember is that only by repeated bacteriologic examination of the faeces and urine are we in a position to say when a man can safely return to duty without being a source of danger to his neighbours, and, further, only by this examination can the latent foci of the disease be discovered, these unrecognized harbourers of the disease, the 'bacilli carriers,' are the chief means by which the disease continues to spread, in spite of all improvements in sanitation.

After these investigations have been continued for some time we get a valuable accumulation of scientific facts, which enables us to intelligently correct real hygienic faults.

It is an interesting fact that methods based on the same principles are employed in Germany to combat the spread of cholera, and our methods for the detection of the cholera vibrio are much more perfect than those for the *B. typhosus* in faeces, because we have in peptone water an excellent 'enriching' medium for the vibrio of cholera.

BEDBUGS AND DISEASE

IN these days animal parasites are so much in evidence as conveyers of disease that we are not surprised to find the cimex lectularius the subject of the following article which we quote from *J A M A* (March 17th, 1906) —

"There is a definite tradition in Russia frequently repeated by Professor Metchnikoff, in his lectures at the Pasteur Institute, that the bedbug forms an intermediate host or is at least an agent for conveying intermittent fever, so common in certain districts of that country. Its possibilities in the rôle of intermediary in cerebrospinal meningitis are still the subject of investigation.

In these circumstances all possible information with regard to the pest is interesting, and consequently a leaflet issued by the Department of Agriculture should attract attention. This pamphlet is written by Dr Girault, who has carefully followed the life-history of cimex or clinocoris, as the insect is variously called in scientific nomenclature, and has found important new material with regard to its feeding habits. The adult insect feeds about once in from thirty six to forty eight hours, taking nearly fifteen minutes to get its fill of blood. At earlier ages the feeding period is much shorter. Except in susceptible human beings who have a decided idiosyncrasy, no local effect at all is produced by the feeding process. Some individuals, however, suffer from almost intolerable itching and have a series of urticaria-like lesions. The parasite is so prevalent in certain parts of the country, however, that it is evident that those with an idiosyncrasy are comparatively rare. The insect may live from five to ten weeks or even longer without any food. This is especially true during the winter, when, if they have no food, they go into a sort of comatose condition. While each insect seems to live not longer than about 100 days at the outside, some have been known to exist as long as eight months, and it is these that enable the species to continue its existence even under unfavorable circumstances, so that they live from season to season in lumber camps, summer residences, empty apartments and the like.

Another interesting phase of investigation with regard to the bedbug and its connection with disease was

carried on by Drs Girault and Strauss as to whether or not the insect had other host relations besides those with the human race. As is easily understood, the host relations of this insect are greatly increased in importance because of their scope in the potential transmission of disease if they attack other animals than man. It has been found experimentally that at least mice, both living and dead, are attacked by bedbugs and that young mice particularly seem to provide an excellent supply of food for them. This observation has been confirmed by observations made by Drs Girault and Strauss, and as it seems not unlikely that other small animals, including even rats, may also be hosts, the spread of such affections as pest, mouse septicaemia and the like by means of this parasite must be taken into account. In a word, a new department of disease etiology seems to be opened up by these observations."

Cimex lectularius measures 4-5 mm in length, 3 mm in breadth, and has eight abdominal segments. The females deposit fifty whitish eggs at a time, three or four times a year, and cimex become mature in about eleven months. Bedbugs live in cracks and fissures, under carpets, behind pictures, in furniture, bedsteads, etc. Hidden by day, at night they attack persons to suck their blood. An alkaline secretion of their salivary glands forms the so-called "wheal." Bedbugs can migrate from house to house and may leave a house if it becomes uninhabited. The characteristic nasty odour of bugs is due to a clear, only volatile liquid excreted. The normal food of the bug is human blood, but it can subsist on moist wood, dirt and dust in crevices and on floors, etc.

In view of the possibility of the spread of Leishman-Donovan infection by bedbugs (as suggested by L. Rogers in a recent paper read before the Royal Society), it is desirable that the habits of these noxious pests be studied. They are common enough on the walls of even the cleanest of jail barracks. A study of the life-history of the Indian species would probably be most useful.

A FIELD SERVICE WATER CART

In the *R A M C Journal* for April, Major T McCulloch, R A M C, describes a new water-cart filter for field service. The following remark shows that the provision of a pure water on the march is not the easy matter gun-chain critics suppose. Major McCulloch writes —

"It has also been recently placed on record from a German source, that great difficulties have been experienced in the attempts made to provide safe water for the German troops engaged in the campaign against the Hereros in South West Africa. Several kinds of filters and heat sterilising apparatus have been in use. Some of the filters clogged, others did not sterilise. A large type of steriliser, mounted on wheels, was on trial, but the apparatus did not always work well and, in a country where draught animals were scarce, transport became a matter of great difficulty, and eventually these sterilisers had to be relegated to stationary camps and hospitals. Small sterilisers were also tried, but with similar results. In the end the soldier was instructed to do his own boiling, and he was advised to avoid water

that had not been boiled Dr Schuan, who gives this information, acknowledges that he himself had often drank unboiled water to appease his thirst, and he lays special stress on the great difficulty of compelling men, parched with thirst, to restrict themselves to the use of boiled water only.

Since the close of the South African War, the question of devising satisfactory means for providing sterilised water for the soldier on field service has received much attention in our own army. Different forms of apparatus have been tried, and every likely method of water sterilisation has received careful consideration, and the teaching of our experience is that the employment of more than one method will probably always be required to meet the variety of conditions obtaining on active service. Boiling and heat exchange apparatus can be effectively used in standing camps. While for use under circumstances where neither boiled nor filtered water are available, each soldier might carry a small box containing a supply of the red, white and blue 'Tabloids,' for Vaillard's iodine process,* which is the most satisfactory of the present known methods of sterilising water by chemical means. The common source of supply, however, will be water sterilised by the field service filter water cart."

The latest pattern of this cart is an iron tank, 108 gallons capacity, with two pumps, two clarifying filters and, for sterilising, eight Brownlow filter candles. At the back of the cart is a small seven-gallon tank for receiving the sterilised water, and this is fitted with twelve taps, from which water-bottles can be filled. Major McCulloch describes the sterilising filters as follows —

"Water is sterilised as required. The eight Brownlow candles are in two sets of four, placed in separate chambers, which are fitted inside the tank. This has been found the safest position, and the cart has been subjected to very rough usage without damage to the filter candles. Each filter candle is covered with a special filter cloth which is found to lessen clogging. The clarified water in the main tank is pumped through the sterilising filters. Each candle has its own delivery tube, or 'swan neck' as it is called, which gives, perhaps, an appearance of complication and fragility, but it is considered better to have eight separate tubes than to have them run together so as to deliver from one, as alteration of the delivery from any one of the candles would give immediate evidence of defect and show which candle was defective, and for a similar reason the tubes are made to discharge in the open.

A store of sterilised water is not carried, except the water that may be in the seven gallon tank behind. The reason for this is that the water can be sterilised as fast as it can be distributed. Indeed, as twelve water bottles can be filled at one time, the filling of the water bottles can be carried out much more expeditiously than was previously possible from the ordinary water cart, and the possibility of the sterilised water becoming contaminated during storage almost entirely disappears. The pumping is not laborious. Both tanks can be readily got at for special cleansing.

The output of sterilised water is far beyond anything that can be obtained by any other method namely, after nine days' continuous use the yield of sterilised water was found to be 210 gallons per hour. Lastly, it has the advantage of not adding to army transport, as these carts are intended to replace the authorised water carts, two of which are now allotted to each battalion.

[* Why not Nesfield's process? Why has the War Office not fully examined this process which seems quite as simple and as effective as the French one?—ED, I M G]

To ensure success, these carts will have to be placed in the charge of men who have been specially trained in the use and care of the filtering apparatus."

THE DIETETIC TREATMENT OF DIABETES.

THE article by Dr R T Williamson, of Manchester, in the special diet number of *The Practitioner* is of special interest in India, where diabetes is such a common disease among the class of educated Indians. Dr Williamson is well-known for his work on this disease, and hence an article from him should be of practical value. Though the present article is devoted to the dietetic treatment of this disease, yet he refers to the good results obtained by combining diet with salicylate of soda or its fashionable substitute aspirin.

With reference to treatment, Williamson divides cases of diabetes mellitus into three groups (1) mild case, (2) medium cases, and (3) most severe cases. In groups one and two groups the urine gives no reaction with perchloride of iron (Gerhardt's reaction), in the third group this reaction is present and often intense. Therefore, this reaction (a decided claret colouration with perchloride of iron) is of great importance and is a sign of the most severe form of diabetes.

We may herewith copy Dr Williamson's diet sheet (for rigid diet) —

"ARTICLES OF FOOD

Sanctioned

Butchers' meat of all kinds (except liver), potted and preserved meats
Ham, tongue, bacon
Poultry, game
Fish (fresh, dried and preserved), sardines, shrimps
Bone marrow
Broths, animal soups, and jellies (prepared without the addition of sugar or starchy materials)
Eggs, cheese, cream
Butter, suet, oils and fats
Custard (without sugar)
Reliable bread substitutes
Green vegetables, salad, mustard and cress, water-cress, endive, lettuce, spinach, turnip tops, cabbage, broccoli, Brussels sprouts, spring onions, French beans, asparagus, rhubarb, cauliflower, vegetable marrow, tomatoes, rhubarb, melon, cranberries, green gooseberries (unripe), shaddock

Cucumber
Mushrooms
Pickles (cucumber, walnuts, and onions)
Nuts (walnuts, almonds, filberts, hazelnuts, Brazil nuts), but not chestnuts
Saccharin, kryсталlose, saxin

Forbidden

Sugar, sweet and farinaceous articles of food
Pastry and farinaceous puddings
Rice, sago, arrowroot, tapioca, macaroni, vermicelli, semolina
Potatoes
Wheaten bread and biscuits
Carrots, turnips, parsnips, beetroot, beans, peas, large onions
Liver
Oysters, cockles, mussels, the "puddings" of crabs and lobsters
Honey
All sweet fruit and dried fruits (especially grapes)

BEVERAGES

<i>Sanctioned</i>	<i>Forbidden</i>
Water, soda, lithia, potash, and seltzer waters	Port, Tokay, champagne, Malaga, sherry, and sweet wines
Tea, coffee	Must, fruit juices, and syrups
Claret, Burgundy, hock, Moselle, Ahr wines, most Rhine wines, Austrian and Hungarian table wines (in moderate quantities)	Sweet lemonade
Brandy in small quantities	Liqueurs
Sugar-free milk	Beer, ale, porter, and stout
	Rum and sweetened gin
	Cocoa and chocolate
	Milk in large quantities."

Fatty foods are of the utmost value, as fatty bacon, fat of ham and meat, cheese, yolk of eggs, butter, suet, cream, bone marrow, dessicated cocoanut powder. In place of potatoes, a few boiled walnuts with pepper, salt and butter may be allowed. Sugar is the most injurious, hence all kinds must be avoided and food sweetened, if desired, by saxon, saccharin or krystallose. The deprivation of fruit is much felt, but those fruits which contain a very small percentage of sugar may be allowed, as cranberries, green gooseberries, oranges, and melons. For bread substitutes Dr. Williamson recommends—

Roborat bread, gluten bread and aleuronat cakes, which are prepared from vegetable albumens, or almond cakes and cocoanut cakes prepared from nuts, and plasmon biscuits, protene bread, casoid bread, etc., prepared from milk albumens. The patient may try all these and choose the one he likes best.

We may quote in full Dr. Williamson's remarks on the most severe form—

"In the severe forms of diabetes mellitus, in which there is a well marked and persistent claret coloured reaction in the urine with perchloride of iron, a rigid diet is not suitable, especially if the perchloride of iron reaction is becoming deeper. In fact, many physicians believe that, in these cases, a very rigid diet hastens the onset of diabetic coma. There is, however, much difference of opinion as to the most suitable diet. Sugar and articles of diet containing much sugar should still be forbidden in this class of cases, but the albumen in the diet should be diminished, the fat increased, and a small amount of carbohydrates allowed in the form of white bread (100 to 150 grammes) and of milk (1 to 2 pints daily). Also a small quantity of those fruits which contain very little sugar may be permitted. Large doses of bicarbonate of soda should be given in soda-water or in milk.

In this form both dietetic and drug treatment are unsatisfactory.

Many writers have recommended a milk diet, or a diet containing a large quantity of milk, in these severe forms of the disease. Several have recorded cases in which the addition of a small amount of potato to the previously rigid diet has apparently been of temporary service, and recently a trial of the oatmeal treatment has been recommended, but it is often of little service.

When *tuberculosis* is present as a complication, a rigid diet is not suitable. Sugar and sweet food must still be forbidden, the carbohydrates should be restricted, but not withdrawn."

THE ENTAMOEBA COLI IN HEALTHY STOOLS.

It is probable that the marked difference of opinion on the pathogenicity, or harmlessness of

the amoeba in dysentery is largely accounted for by the fact that there are at least two kinds of amoeba of common occurrence in human intestinal tracts.

Schaudinn has demonstrated the presence of *entamoeba coli* in 50 per cent of healthy persons examined in West Prussia, in America Craig has found the same parasite in the stools of 65 per cent of healthy individuals examined. On the other hand Strong, Musgrave and Clegg, from their Philippine experience, consider that "all amoebas are or may become pathogenic."

The question has recently been re-examined by Dr. E. B. Vedder, of the U. S. Army, now serving in the Philippines (*J. A. M. A.*, March 24th), he distinguishes between *entamoeba coli*, and *entamoeba dysenteriae*. The first parasite has been found in 50 per cent of the American soldiers examined, and in 70 per cent of native soldiers, and is the most common parasite. The following tabular statement sums up the difference between the harmless *entamoeba coli* and the still reputed harmful *entamoeba dysenteriae*—

ENTAMOEBA DYSENTERIÆ	ENTAMOEBA COLI
SIZE.	
25-30 Microns. (Not a distinguishing feature)	10-20 Microns.
SHAPE.	
Usually some other shape.	Spherical when resting
COLOUR.	
Greenish	Opaque grayish
PROTOPLASM	
Ectoplasm and entoplasm easily distinguished	Ectoplasm and entoplasm distinguished with difficulty
Ectoplasm very refractive	Ectoplasm not refractive
Ectoplasm finely granular	Ectoplasm homogeneous
Entoplasm coarsely granular	Entoplasm finely granular
PSEUDOPODIA	
Large and easily distinguished	Entirely ectoplasm
Contain ectoplasm and entoplasm	to distinguish
VACUOLES	
Many vacuoles	Vacuole absent usually
	Never more than one
NUCLEUS	
Often absent. When present structure of nucleus hidden except in stained specimens	Almost invariable with well defined nuclear membrane and other structure
Nuclear membrane not well defined	
Changes position markedly	In moving organism retains its relative position
RED CORPUSCLES INGESTED	
Many.	None observed
MOTILITY	
Great progressive motility	Often absent, and when present, of limited extent and short duration

It is obvious that the mere finding of "an amoeba" in the intestines or stools, or in a liver abscess is not sufficient, unless the distinction is made between the above two varieties. It is much to be desired that a study be made of the connection, if any, between dysentery and

"chronic diarrhoea," and the amœbæ be made in India. At present we know little of definite importance on the matter.

THE NORWOOD SANATORIUM

THIS sanatorium in Upper Norwood, N.-E. London, has been financed for some time by Mr Joseph Rowntree of York, the well-known practical philanthropist. It is intended to place the treatment of inebriety and the drug habits on a sound scientific basis. The following are a few of the names on the Advisory Medical Committee—Sir Victor Horsley, Dr Harry Campbell, Mr McAdam Eccles, Dr J. T. Hewetson, Dr T. N. Kelynack, and Prof Sims Woodhead.

As soon as the institution is on a sound financial basis, it is proposed to hand it over to an Executive Committee of representative medical men. The Medical Superintendent is Dr Francis Hare, author of the well-known books "Cold-bath treatment of Typhoid" and "Food and Disease." Medical men can on application receive circular letters and reports on the working of this useful and necessary institution.

THE April 1906 issue of our enterprising and always interesting contemporary, the *Practitioner*, is devoted to the subject of diet, a matter of importance always but more than ever of recent years.

The number consists of fourteen articles by well-known authorities, among the best are the two introductory articles by Dr Noel Paton, and Dr R. Hutchison, that by Dr Williamson on Diet in Diabetes, and Dr Luff on Diet in Gout and allied conditions are excellent. We cannot say much for that on Diet in the Tropics by Dr W. J. Simpson. It is written for English readers and contains little of value to residents in the tropics.

THE Kashmir Medical Mission has now been working for 40 years, and an enormous amount of good medical and surgical work is now done in the hospital, as the articles by Dr A. Neve and Dr E. F. Neve in our columns have often testified.

The figures of attendance for 1905 are as follows—In-patients 1,423, out-patients 19,212, total visits 42,234, and operations 3,981. The quiet steady growth of the in-patient department is a feature of recent years' progress. Female patients come more and more, and for better class patients new private wards have just been built.

The report says—

"1,202 operations were required for eye diseases alone. Of these 117 were for cataract and 677 for entropion. As usual bone disease was much in evidence. 218 operations were done for this and 53 for disease of joints, without any mortality. There were 19 major

amputations with one death, a case of gangrene of the leg in an old man.

As usual among the tumours, the "Kangri burn" epithelioma figures prominently. Of these there were 76 cases.

Among the abdominal operations the most interesting was one of obstruction from hernia into the foramen of Winslowe. The patient's life was saved. In a case of strangulated hernia 6 inches of gangrenous bowel was resected and the ends of the bowel joined by suture with a successful result.

Although chloroform was administered to 843 cases the number in which we employ local anaesthesia is increasing, and ethyl chloride is found useful for short operations, using Dr Guy's inhaler. The confidence of the people has been gained by the surgical work which has been carried on for so many years. The number of medical cases is relatively smaller. A great many come as out-patients, but they are unwilling to remain in the wards. Advanced heart disease with failure of compensation is very common, cirrhosis of the liver, dyspepsia, gastric dilatation, bronchitis and rheumatism are of frequent occurrence. Phthisis is, I fear, markedly on the increase. The varieties of nervous disease are very few compared with Europe. Intestinal parasites abound, and parasitic skin diseases are extremely common.

We have received and will notice in an early number the reports of the Thompson Yate's Laboratories, Liverpool, Vol. VI, Part II, and Vol. VII, Part I.

A SECOND instalment of the article in the *Journal of Tropical Medicine*, on the depreciation of the attractions of the I. M. S., came to hand in the March number of that journal. We are not prepared to follow the writer into a lengthy disquisition on the plague policy of the Government of India. Plague has been imported into Britain on several occasions, and has always, hitherto, been stamped out, by strict segregation of cases and contacts. Such action is possible with the hearty approval and co-operation of the people. Without these, it is impossible, and such approval and co-operation are not forthcoming in India. In any case, it is only on the first importation of cases that any such restrictive measures can be of service. Had the Government, in the absence of popular co-operation, done nothing, they would certainly have saved a great deal of money, which, as things have turned out, has been spent to but little purpose. But we can imagine the hail of execration which would have gone up against the *laissez-faire* policy which would be guilty of such indifference. Probably, the Government would have been blamed for leaving undone the very precautions which they are now pilloried for having carried out.

We regret the sneer at a distinguished officer, recently dead (since the second article in the *J. T. M.* was written). He did good service in Chitral and in the Soudan. If he failed in South Africa, he shared the fate of others of even higher previous reputation. Peace be to his ashes.

The writer states that the Government of one Indian province issued an order that the Civil Surgeon should inspect every house in the chief town of the district, measuring every room. There are many provinces in India, and we cannot say that such an order was *not* published. We have never, however, heard of it before.

It appears from the *Agricultural Ledger* (1905, No. 5) that the chaulmugia seeds of commerce are not obtained, as has long been thought, from the tree known as *Gyocardia odorata* or *Chaulmugia odorata*, but from a tree now identified by Lieutenant-Colonel Prun, I.M.S., as *Taraktogenos kurzu*, a species described by Sir George King (I.M.S., ret'd) in 1890.

Calcutta is the great market for chaulmugia seeds, but the seeds chiefly come from Chittagong. These seeds should therefore correctly be called "*Taraktogenos* seeds," but will probably be known as "true chaulmugia seeds" somewhat quaintly, as the tree which bears the name chaulmugia or *Gynocardia* is now said to produce the 'false' chaulmugia trees. The important fact medically is that the seeds, from which the chaulmugia oil, much used in leprosy, is made, really come from a tree named *Taraktogenos Kurzu*.

THE regulations for the award of United Provinces Entrance Scholarships at the Lahore Medical College are published in the *United Provinces Gazette* for April 21st, 1906.

FORMER (*Graefe's Archives*) tries to unravel the pathology of senile cataract on the basis of the most recent researches regarding the blood serum, founded especially on the theories of Ehrlich relative to immunity. He attempts to find a solution of the problem by predicated a cellular poison which acts on the cells and on the fibres of the lens.

WE are glad to see a marked improvement in the March and April numbers of our new contemporary, *The Hospital Assistant*. The April number contains several original articles of interest, and selections from other medical journals. The paper is intended to further the interests and advance the knowledge of that most useful and generally hardworking class of practitioners in India, the Hospital Assistant. We have every sympathy with these men, and we believe a fair and judicious preaching of their claims to be right and reasonable. We hope that the new journal will continue to cater for the better education of the class from which it derives its name, and avoid being merely an organ for the publication of grievances. We wish the editor every success on the lines on which he has begun.

OUR SPECIAL PLAGUE NUMBER

WILL be published next month, July. On this account we must, perforce, hold over many papers already in hand and marked for publication.

Reviews.

A Text-book of Clinical Diagnosis.—

By Laboratory methods By L. NAPOLEON BOSTON, A.M., M.D., 547 pages. With 320 Illustrations, many of them in colours. Publishers W. B. Saunders & Co., 1904, Philadelphia, New York and London.

FOR this fine new work on clinical diagnosis we are again indebted to America. The clinical examination of the blood, sputum, faeces, etc., has assumed such an important feature in medical practice that a thorough knowledge of the different methods made use of and the interpretation of the results obtained becomes absolutely essential for successful therapeutics.

Dr. Boston presents a practical manual of those clinical laboratory methods which furnish a guide to correct diagnosis, giving only, however, those methods that can be carried out by the busy practitioner in his office, as well as the student in the laboratory.

Special attention is given to the description of the progressive steps of the various procedures in clinical technique, such steps being illustrated wherever possible.

The work is divided into thirteen chapters with an introduction on the use of the microscope and a useful addenda.

The first chapter—the chapter on Blood—is extremely good and contains all the more recent methods of examination and staining which are well described and illustrated.

Boston adheres to the old methods of film-making, namely, the sliding of two cover-glasses on two slides over each other. We have found the much more simple and more effective method is that of spreading the blood either with a straight needle or a cigarette paper. The subject-matter of this chapter on the blood is very well handled, and gives a very clear and careful account of the conditions met with in health and disease.

We notice in the chapter on the Urine that some of the older methods of examination and estimations of the constituents of the urine are absent, their place being taken by newer methods which are not universally known in this country.

Five chapters are devoted to the examination of the contents of the alimentary canal, *i.e.*, gastric contents, faeces, sputum, buccal and nasal secretions. These chapters are well written and contain a large amount of knowledge well condensed into a lucid description.

An unusual amount of space is given to the consideration of animal parasites, and to diseases of the skin.

The addenda contains the quantitative estimation of purin and uric acid in the urine and also two useful tables. An exhaustive index has been added enhancing the value of the book for ready reference.

Students and practitioners will find the volume of immense practical value in their search for the truth, and we have no hesitation in recommending this latest work on clinical diagnosis to the profession as being thoroughly reliable and up-to-date.

The volume is exceedingly well produced by the publishers.

The Blood How to Examine and Diagnose its Diseases—By ALFRED C COLES, M.D., D.Sc. F.R.S., Edin. Third Edition. With seven coloured plates. London: J & A Churchill, 7, Great Marlborough Street, 1905. Price 10/6 net.

THE fact that the second edition of this small manual on the blood has been exhausted, and a third edition called for in such a short time notwithstanding the great increase, within recent years, of the literature dealing with this subject should rightly be a matter for satisfaction to the author besides speaking well of the value of the book in the opinion of the profession at large.

In this new edition many additions have been made, more particularly on the subject of blood parasites. Trypanosomiasis, in man and animals has received special consideration and the subject has been rendered as practical as possible.

The Leishman-Donovan bodies have been described at length and the book has the distinction of being the first of its kind to publish the successful cultivation of these bodies by Rogers.

This book is so well known to those interested in the blood that little need be said about it. The present edition is quite up to the standard of the earlier editions, and it should be of the greatest value in the examination of the blood and in the diagnosis of its diseases.

The Operative Treatment of Fractures.—By W. ARBUTHNOT LANE, M.S., F.R.C.S. Price, 7s 6d. Publishers: The Medical Publishing Company, Ltd., Bartholomew Close, London.

MR LANE has been operating on all cases of simple fracture, when he has not been able to obtain accurate apposition of the fragments, for the last thirteen years, and this book embodies the results of his treatment.

In the opening chapters the changes which take place in the skeleton when exposed to abnormal pressure from varying occupations are described, and these lead up to a section on the changes which occur as a consequence of a badly united fracture.

As regards treatment, the opinions of different eminent surgeons are quoted and the differences between their statements pointed out. Mr Lane

holds that the after-results, more particularly among the labouring classes, are not at all satisfactory, and that, as a consequence of a fracture, the man's wage-earning capacity is often distinctly reduced.

The mechanics of fractures are fully described. The author's opinions do not coincide with those usually given in text-books, but the reasons given in support of his views are certainly convincing. Many different fractures are described, but particular attention is paid to Pott's fracture.

A section on operations on malunited and ununited fractures follows. The author is of opinion that non-union occurs much more frequently than is generally acknowledged.

The details of operation are also described. Great stress is laid upon perfect asepsis, after making the incision the edges of the wound are secured to sterilised towels by special forceps, the fingers are never introduced into the wound and all sponging, etc., is effected by sponges on holders, all instruments used are provided with extra long handles with the same object.

The best method of uniting the fragments is the screw, but wire or staples may be used.

Many skiagrams are included in the text—they are well reproduced.

This method of treatment has not come into general use, but every surgeon of experience can certainly remember cases in which the result of his treatment of a fracture case has not been all that could be desired, and when there is great difficulty in reduction, it would certainly be as well to bear Mr Lane's methods and results in mind. Perhaps Mr Lane has been a trifle partial in his selection of the cases to show the bad results of the ordinary treatment. Possibly another indication for wiring a fracture in this country would be in those patients who evince an intense repugnance to the application of splints and are constantly undoing the bandages, but here again the patient would most likely get his fingers into the wound unless protected by the application of a plaster of Paris splint.

The Treatment of Gonorrhoea in the Male—By C. LEEDHAM-GREEN, M.B., F.R.C.S. Illustrations 36. Pages XII and 151. Demy 8vo. Price, 5s net. Publishers: Baillière, Tindall & Cox, Henrietta Street, London.

THIS book comprises a description of the recent methods of treating gonorrhoea and includes in a concise form the work of many foreign authors, chiefly German.

The practical anatomical points of the bladder and urethra are discussed, the important clinical division of the urethra into anterior and posterior parts being emphasised. The author does not agree with Finger that with distension of the bladder the prostatic urethra becomes taken up to form the so-called "bladder neck" and has apparently proved his point by radiographing bladders distended by the injection of

a suspension of bismuth, in these cases he has found that the organ retains its globular shape

The next few chapters describe the symptoms of both anterior and posterior urethritis and then differential diagnosis, a chapter on the bacteriological examination is added

The treatment of the acute stages of the disease is very fully and carefully described, of internal remedies sandalwood oil is preferred

As regards irrigating fluids, full particulars are given as to when to order them, strength of the various solutions in common use and the different methods of using them

Chronic urethritis is even more fully treated. The second part of the book deals with the complications excluding stricture and conjunctivitis. With reference to the frequency of the occurrence of prostatitis, the author holds that the organ is more frequently affected than is commonly taught, that is to say an acute follicular or catarrhal prostatitis is common. The difficult question of the proof of the cure of the disease is ably discussed

In conclusion, the book is an excellent résumé, of the subject and well worth reading

The Nature and Treatment of Cancer —

By JOHN A. SHAW MACKENZIE Pages 94 Crown 8vo 2s 6d net Publishers Baillière, Tindall & Cox, 8, Henrietta Street, London

THIS is the third edition of a book which originally appeared under the title of "Some methods of Hypodermic Medication in the treatment of Inoperable Cancer," and which was recently noticed in this Journal. The author in addition to his treatment with hypodermic injections of sodium oleate and chian turpentine has been trying the effect of trypsin both subcutaneously and when administered by the mouth.

He describes four cases which have been treated by this latter method and produced relief of pain and a lessening of the ulceration and fætor.

Some of the recent work in connection with carcinoma is quoted with the author's deductions why the injection of trypsin should produce a favourable effect upon the progress of the disease.

More cases must, of course, be treated by this method before any definite pronouncement as to its value can be made and certainly cases suitable for operation should not waste valuable time by submitting to this treatment in its present uncertain position.

Practical Massage in Twenty Lessons —

By HARTING NISSEN 46 Illustrations, 168 Pages 12mo Price \$1.00 net Publishers F. A. Davis & Co., Cherry Street, Philadelphia

THIS little book begins with a short note on the history of massage, showing the antiquity of its practice.

The earlier chapters deal with the different varieties of massage and of movements, these are clearly described, a few illustrations help the text.

The length of time which should be occupied in each movement and the class of case in which the particular movement is indicated are also given.

The second half is occupied with different diseases which are improved by massage, and describes the movements which are generally suitable.

The author does not claim that any and every disease can be cured by massage, but in one or two instances makes statements which are scarcely in accord with ordinary medical experience, but with this exception the book may fairly be considered a plain and practical description of massage and medical gymnastics.

Notes on Surgery for Nurses — By JOSEPH BELL, M.D., F.R.C.S. (Edin.) Price 2s 6d Publishers Oliver & Boyd, Edinburgh

THIS is the sixth edition of the book and has been thoroughly revised. The processes of inflammation, ulceration, gangrene, etc., are very clearly and carefully described, also the treatment up to a certain stage and what the nurse should do under varying circumstances. Other chapters discuss the different methods of healing of wounds, burns and fractures. There is a useful section on special operations with hints on what to prepare before the surgeon's arrival, and what condition may be expected after some of the more common operations.

The general advice to nurses is excellent, whether addressed to the probationer of a day who is among other things told to "keep her eyes open and her mouth shut," or to the nurse leaving the hospital and commencing private work. A few remarks are also addressed to the public, some of whom expect a trained nurse to be "a judicious blend of an angel, a horse and a steam crane!"

This book should certainly be read by any nurse beginning her training, and would be of use to anybody who has to lecture to nurses.

The Physiology and Therapeutics of the Harrogate Waters, Baths and Climate, applied to the Treatment of Chronic Disease —

By W. BAIN, M.D., M.R.C.P., and W. EDGECOMBE, M.D., F.R.C.S., Pages 300 Price 7s 6d net Publishers Longmans, Green & Co., London, 1905

THE aim of the authors in writing this volume on the therapeutic value of the Harrogate waters and baths has been to supply evidence that treatment by these waters rests on a secure foundation comparable to that of drug therapeutics.

They have based their opinion and conclusions on evidence supported by experimental research and clinical experience. The book is divided into four sections.

Section I deals with the pharmacology and therapeutics of the natural mineral waters. It contains a great deal of general information on

the value of mineral waters, gives a classification, and considers the different waters separately.

The authors divide them into two classes—saline-sulphur waters and saline-chalybeate waters.

Section II describes the baths. These are divided into thermal baths, thermo-chemical, thermo-mechanical, thermo-electrical and electric baths. The physiological action of each of these is gone into very fully, a large amount of very valuable information being condensed into a concise description. The section is completed by an account of the therapeutic uses of the baths.

Section III deals with the climate. The first points taken up are the different factors which go to determine climate and the physiological effects of these climatic factors. The climate of Harrogate is described with respect to its local features, meteorological data, medical aspects, permanent residence and its suitability for invalids.

Section IV is devoted to the treatment of chronic disease, a very large number of chronic morbid conditions being considered in detail. This we consider will be an exceedingly interesting chapter to the medical profession in India, whose members are so often called on to send home their European patients for condition such as are here described, and who are often at a loss to know which of the many health resorts to recommend as being the one most suitable for their patient's particular ailment. The present volume fills a distinct gap and should be of the greatest assistance to medical practitioners in the guidance of their choice of the Spa treatment of disease.

The book is a handsome one, well-written and arranged in a very excellent manner—the method adopted being uniform throughout. First, remarks on the general principles involved, secondly, the physiological action is discussed, and thirdly, the therapeutic application.

We have great pleasure in recommending this book on Harrogate as a health resort to the notice of the profession, and we have no doubt but that careful reading of it will repay them many times over.

Movable Kidney. A Cause of Insanity, Headache, Neurasthenia, Insomnia, Mental Failure and other Disorders of the Nervous System. A Cause also of Dilatation of the Stomach.—By C. W. SUCKLING, M.D. (Lond.), M.R.C.P., Consulting Physician to the Queen's, to the Children's and the Orthopædic and Spinal Hospitals, etc. Illustrated. Pages 127. Publishers H & K Lewis, Gower-street, 1905.

In the March number, 1904, of the *Indian Medical Gazette*, we discussed at some length Ren Mobilis or Movable Kidney, and also at the same time referred to two valuable papers by Dr Suckling on this condition. The present little book is a further contribution

from the same authority, wherein the author goes very fully into the subject, and attempts to prove that on it depend a very large number of the disorders usually defined as neurotic, and also some that are due to distinct changes in the tissues of a pathological nature.

In the preface, Dr Suckling takes Professor Osler very severely to task for certain statements in the latest edition of "The Principles and Practice of Medicine." We may say at once that we do not admire the style the author adopts in "proposing to examine these statements and point out the errors in them." On the other hand, every one agrees with Dr Suckling that in certain cases movable kidney may give rise to very severe symptoms and may require urgent treatment, but we cannot accept his opinions as final. Speaking from a fairly large experience of cases of this condition that were discovered "accidentally," i.e., in which the patient was suffering from some totally different disease, the dropped kidney being discovered during the examination, in our opinion it is not at all an uncommon condition to find both among Europeans and natives of India, and in the great majority of cases not only did the patient know nothing about it but made no complaint of any of the "ill-effects and dire results" that Dr Suckling lays such great stress on.

The book is very much out of the common, its style being diametrically opposed to what one expects to find in a temperate, carefully-considered advocacy of an author's opinions, in fact, it reminds one of the literature accompanying certain medicines, backed up, as this book is, by testimonials in the handwriting of patients, nurses or friends. While agreeing with Dr Suckling of the great importance of bearing in mind the grave symptoms that this condition of Ren Mobilis may give rise to, we cannot help thinking that he thinks and writes of it out of all proper proportion, and that in his desire to convince he tries to prove too much.

Lectures on the Nature, Causes, Variety and Treatment of Bodily Deformities.—By the late E. J. CLANCE. Edited by JOHN POLAND, F.R.O.S. Price 6s net. Publishers Smith, Elder & Co., London.

THESE lectures were originally delivered in the year 1852 at the City Orthopædic Hospital which had been recently founded.

From the introduction one sees that there had been a good deal of opposition to the foundation of the hospital, and that the author was still smarting from criticisms made by members of the staffs of the larger General Hospitals, and he here replies to them in the old-fashioned way with all his chief points in italics, incidentally one gleanes some interesting information about the development of this branch of surgery.

The whole subject of deformities is discussed in its varying aspects. The first chapter contains an account of the structures at fault and the

succeeding ones on the causes producing congenital deformities, a long discussion on whether maternal impressions have any influence in their production is found here, and also whether position *in utero* has any effect

The last two lectures deal with the acquired variety. The nature of rickets, scrofula and tubercle are discussed, then pathology at that time not having been settled

The book is interesting as showing the state of knowledge more than half a century ago, and on account of the excellence of the style alone is well worth reading. The illustrations are from the author's own drawings on wood or from his notebook, and show that he possessed a very considerable amount of artistic skill. The Editor has added a large number of foot-notes containing the modern work on the subject

Clinical Obstetrics—By ROBERT JARDINE, M.D., &c. Second Edition. With 96 Illustrations and a Coloured Plate. Pp 609. Publishers Rebman, Ltd

THE value of this work, as evidenced by the deserved popularity of the first edition, has been much enhanced by the addition, in the second edition, of a considerable number of interesting cases and fifty new illustrations, and we unhesitatingly predict for the latter as favourable a reception as the former met with. In all scientific study, observations which tend to throw light on matters regarding which convincing testimony is still wanting are more than welcome to the student and progressive practitioner, and we would particularly invite attention, in this treatise, to the author's views regarding the pathology and treatment of puerperal eclampsia, that still obscure and dangerous complication of the pregnant condition. He assumes the seizure to be of the nature of an explosion of nervous energy arising from the toxication, on already unstable nervous centres (peculiar to pregnancy), of a chemical poison, resulting from tissue metabolism in connection with the development and nourishment of the foetus *in utero*, which, owing to some fault on the part of the liver or kidneys, or both, is retained in the maternal circulation. He says that the routine methods of treatment, however correct theoretically, are, in most cases, irrational from impracticability of application, he recommends an attempt to establish rapid diuresis by large infusions into loose cellular tissue of normal saline solution combined with a diuretic. He injects as much as three pints of the solution with a diachm to the pint of acetate of soda, and states that he is convinced that not only is diuresis brought about but that the poison becomes diluted and the system stimulated. The urine excreted after an infusion is usually heavily loaded with urates, which remain suspended for days (a condition never noticed in the urine of cases

treated without infusions). If the condition does not improve in a few hours the infusion is repeated, and, as large an amount of imperial drink and milk as can be taken given so soon as the patient can swallow. Under this treatment the death-rate has been reduced by nearly fifty per cent in the Glasgow Maternity Hospital (taking the cases in order of admission). Thirty cases are reported in the work under review, and, in a prefatory note, the author refers his readers to the *Journal of Obstetrics and Gynaecology of the British Empire* for July 1905 (for a report of fifteen consecutive successful cases) should they consider that these cases do not afford sufficient data from which to judge of the utility of the method. Dr Jardine lays great stress on the necessity for strict asepticism in midwifery, and has dedicated the work to "those obstetricians who are endeavouring by aseptic methods to do for midwifery what has already been done for surgery." The publishers are to be congratulated on the excellence of the type and illustrations, and the handsome appearance of the volume

Medical Chemistry and Toxicology—By JAMES W. HOLLAND, A.M., M.D., Professor of Medical Chemistry and Toxicology, and Dean, Jefferson Medical College, Philadelphia. Publishers W.B. Saunders & Co., Philadelphia and London

THIS is intended as a text book for the medical student, and makes no pretence to be a treatise on pure chemistry. The author has well succeeded in his object, and in a book of some 550 pages gives probably all the chemical information that a medical practitioner need be acquainted with. The therapeutic and toxicological uses of the elements and their compounds and also of the carbon compounds are clearly described, in this way the dry bones of chemical fact and theory are vivified while the importance of a knowledge of chemistry to all branches of medicine is at once realized. The latter part of the book deals with the essentials of physiological chemistry of digestion, the blood, milk and urine. The clinical bearing of this branch of the science is clearly indicated. In America it appears that medical chemistry is taught as a distinct subject by medical professors. This plan has much to recommend it. In the English system the medical student, after passing a preliminary scientific examination, proceeds to jettison what to him seems lumber and also important matter whose close relation to physiology, pathology, medicine, pharmacy and toxicology he has never been taught to realize. Dr Holland's work should be useful to a medical man who wishes to explore the chemical foundations of the various departments of his profession and to both junior and senior students who desire something more than the satisfying of examiners.

Current Literature.

MEDICAL

Dr Hector Mackenzie (*The Polyclinic*, December 1905), lecturing on an *abscess of the liver*, remarked that the experience of liver abscess in London was necessarily very small compared with that in tropical countries. At St Thomas's Hospital during the last twenty years there have been only forty three cases of hepatic abscess.

Dysentery was by far the most common cause of the condition, and as dysentery was not much more common in men than in women, whereas liver abscess was only found in about 8 per cent of cases to affect women, there must be some added cause operating in men to account for the male preponderance. Enquiry on the subject showed that an over-indulgence in alcohol is an important factor.

The main symptoms the lecturer laid stress on were—pain, tenderness, fever, dyspepsia, slight jaundice. By far the most important being pain which might be sudden and severe. He did not think it would be possible to diagnose liver abscess if the patient were free from pain though pus might be suspected somewhere.

Fever was often the earliest symptom. Sometimes there was a sudden onset with severe rigors, high fever, vomiting, etc., a considerable time before the appearance of pain. Deep jaundice is rarely associated with liver abscess. The absence of leucocytosis is no contraindication of liver abscess, just as its presence gives no certainty that there is an abscess. Of more importance than leucocytosis is the differential cell count. If it were found that there is a marked increase in the polymorphonuclear with a diminution in the small lymphocytes and absence of eosinophilia, there is probably pus present. Dr Mackenzie warned his hearers not to put their faith in negative blood examinations, but if there were a sufficient number of symptoms and physical signs, to be bold enough to have an exploration made.

Dr Allen I Smith (*University of Pennsylvania Bulletin*, October 1905), has a very interesting article on the histological changes encountered in the thymus and elsewhere in a case of *congenital hypotonia*.

He found fibrosis of the thymus with enlargement of the Hassall's corpuscles, endothelial proliferation in the thymus and in the malpighian bodies of the spleen, arteriosclerosis in the thymus and spleen, the presence of lymph nodes in the lung and the proliferation of the lymphoid elements of the mesenteric lymph nodes. Dr Smith continues that our knowledge of the thymus and its Hassall's corpuscles usually looked on as a vestigial rather than as elements with active function, is too vague to permit anything beyond a mere surmise, but it is not inappropriate here to keep in mind the general idea that the thymus, either by internal secretion or by destruction of untoward products of metabolism, has an influence upon the development of all or of parts of the body, either directly or through some action upon the trophic nervous power. One must consider that in this disease there may exist some condition of auto-intoxication arising from faulty metabolism which has a stimulative influence upon the vascular and lymphatic endothelium setting up the changes described.

Remarks on Shock—Malcolm (*Brit Med Jour*, December 9th) points out that shock, sleep death from old age or from certain complicated febrile conditions have many features in common. The functions of the central nervous system are partly in abeyance owing to exhaustion, so that the patient loses consciousness and the power of sensation and motion while the temperature tends to fall. Cardiac, respiratory, and nutritive changes are carried on with a lower degree of activity.

In shock, in the case of an injury, the exhaustion of energy seems to be due to an over stimulation of the sensory nerves whether the stimulus is applied gradually during an operation or suddenly as in the case of severe accident. Some years ago it was taught that the cause of shock was a paralytic dilatation of the vessels of the splanchnic area followed by anemia of the brain. In opening the abdomen, however, no evidence supporting this has been found even in marked degrees of shock. Malcolm considers that in shock unconsciousness is due to nerve exhaustion and brain anemia from intense constriction of the arteries. Clinical symptoms agree with this statement. In constriction of the arteries constriction begins in the arterioles, causing a full bounding pulse of heightened tension, then the contraction gradually extends to the larger arteries pulse becomes small, hard, later thready and finally imperceptible. Again in shock, the blanching of the skin, the complete or partial anæmia, the beneficial effects from vaso dilator drugs, such as amyl nitrite or nitro glycerine, etc., are best explained by constriction not dilatation of the capillaries and blood-vessels.

In conclusion Malcolm argues that his views regarding the causation of brain anemia in shock are founded on the well-known physiological fact, that stimulation of a sensory nerve causes vaso constriction, whereas the view that a general paralysis of the arteries is caused by an injury has no such basis.

D M cC

Roentgen Examination of the Stomach—(*Jour A M Assocn from German*)—Holzknecht and Brianner emphasise the value of the information that can be obtained from examination of the stomach by the *Roentgen Rays* after ingestion of a solution of bismuth. The solution settles in the cracks and around the outside of the tumour and thus throws it into relief. The size of the stomach and its relationship to other organs can be accurately determined, the effects of massage and the displacement of the organ during respiration seen. The diagnosis of cancer or hour glass stomach is an easy matter by this means, and it also allows undisturbed supervision of the stomach peristalsis.

Researches on Leukæmia and Pseudo leuæmia—(*Jour A M Assocn from Italian*)—Schupfer's article issues from Baccelli's clinic at Rome. He is convinced that leukæmia has no analogy with ordinary infectious diseases, but is more in the nature of a systematic sarcomatosis of the lymph and blood producing organs. To demolish completely the idea that leukæmia can be due to any ordinary micro organisms and that they circulate in the blood, he injected cancer patients with blood from some patients with leukæmia, the results were entirely negative. Further experiments with inoculation of leukæmia tissue, he thinks, have fully confirmed the assumption that leukæmia is a sarcomatosis.

Cyllin in Sprue—Harligan, M D (*Jour of Tropical Medicine*) The writer tried boracic acid, carbolic acid, salol, perchloride of mercury, etc., all of which proved inefficient in sprue.

Cyllin is known from Bousfield's experiments to practically destroy without constitutional disturbance the *B coli* of the intestines, the writer therefore tried it in sprue in the form of intestinal palatinoids 3 m of cyllin in each. The palatinoids pass undigested through the stomach, but dissolve in the intestinal canal. It is usually well borne and appears very beneficial. The number of stools rapidly diminish, motions lose their frothy character then become gradually bile stained and more consistent.

The soreness of tongue gradually, lessens though it may not entirely disappear for months after the patient is really well.

The palatinoids may be given every second hour, but rarely more than two a day are required. They should be given an hour after food.

How to Secure Immunity from Malaria.—In the *Archiv für Schiff- und Tropen Hygiene*, 10 Bd., Heft 2, 1906, appear articles by two well known malarialogists on this subject.

A Plehn, who for many years has studied the question in Kamerun, advocates the exhibition of $\frac{1}{4}$ gramme doses of quinine every fifth, or every fifth and sixth day during the whole period of one's stay in the tropics, and for sixth months after one's return to Europe. He states that Ziemann has found that the like quantity of the drug is better given every fourth day, and he lays stress on the fact that gramme doses given every tenth day are prone to give rise to hæmoglobinuric fever, while being less efficacious against malaria pure and simple. He does not hold, with Celli, Koch, Daniels, Christophers and others, that immunity can be acquired by the organism as the result of several attacks of the disease. He is sure that never is there any reactionary formation of malaria antibodies (Ehrlich's free receptors). He believes, however, that a certain relative immunity may be acquired, as is seen in children, who look well and have no fever yet whose blood is full of active parasites, which, when they do break out into rapid proliferation, may cause a slight enlargement of the spleen, with some anæmia. In such cases, he thinks, the relative immunity may have been acquired from the mother's blood and milk, which have conveyed an endotoxin, the result of changes in the albumin of the protoplasm of the parasites in her blood, changes which are due to their development as well as to their death. He lays stress on the fact that the relative immunity conferred by cinchonization is apt to cease so soon as the taking of the usual dose of quinine is intermitted. The patient then has an attack of malarial fever, which is but slight, however.

As to systematic destruction of mosquitoes, combined with cinchonization of the entire parasite bearing population, as a means of rooting out malaria, he is of opinion that this, if it were possible to carry out, can not be recommended on humane and financial grounds because by this means a previously relatively immune population would be converted into one prone to suffer from malarial fever, when once the parasites had been introduced into its midst from neighbouring populations. Yet Plehn had just adduced the freedom of France and England from malaria in spite of favourable conditions for its spread, which obtain in these countries, and the constant importation of the parasite by home seeking malaria stricken soldiers and colonists as a proof that "one may say that malaria generally sticks to the place of its origin, and even under the apparently most favourable conditions, is very rarely introduced by those who suffer from it into other localities, so as to cause new foci of the disease there" and he laid stress on the fact that in Italy, where the conditions and presence of mosquitoes are very favourable for its spread, the disease does not spread to certain regions, although into these it is constantly introduced. It is not quite easy to reconcile these two utterances, the translator thinks, but doubtless they are reconcilable as nearly every other two utterances are by dialectic.

Celli, whose self-avowed efforts to lessen the misery caused by malaria to his fellow countrymen, are matter of common knowledge, states that he has found that the best method of prophylaxis against malaria is the exhibition of daily doses of 40—60 cgm (8—9 grains) of quinine, in a sugared tablet. After the fourth or fifth day all unpleasant symptoms, such as giddiness, buzzing in the ears, etc., cease to be felt, and the drug acts as a saver of carbohydrate and nitrogen consumption. This method of prophylaxis is far superior to that of giving the quinine in doses separated by a longer period than one day. Arsenic is of no use whatever, nor is iron, in these cases.

Correspondence.

EXTRACTION OF CATARACT IN THE CAPSULE

To the Editor of "THE INDIAN MEDICAL GAZETTE."

SIR,—With every desire to avoid a tedious controversy, I must yet ask for a little space to reply to the main practical points of Major Smith's article and Captain Oxley's letter in the April issue of the Gazette, in so far as these points do not appear to have been already sufficiently dealt with in my former article.

I wrote on the subject of intra capsular extraction because it seemed that harm was being done by Major Smith's unchallenged use of unfair and unwarranted claims. It is perhaps unnecessary to emphasize further the unfairness of claiming an extraordinary percentage of "first-class results," based entirely upon an overworked Assistant-Surgeon's tests and records. The figures are questionable, not so much from doubts regarding the good faith of the assistant, as from (1) the enormous press of work to be got through at Jullundur, and from (2) the fact that the unchecked results are inconsistent with common experience. Since it is an old established fact that loss of vitreous is followed in a proportion of cases by detachment of the retina, one is bound to assume that at Jullundur the same sequence obtains, but passes unnoticed. Exact figures being from the nature of the case not obtainable, it is well to remember that careful observers outside India are probably greater authorities on this subject than the hard-worked surgeons of this country, who have no opportunity of following up their cases.

Major Smith not unnaturally alludes to the great and increasing appreciation of his work by the Panjabis, as a tribute to the success of his operations. But why consider only one detail of the operation—certainly the most fascinating to the surgeon, but not necessarily the most important to the patient? Why not apportion some of the repute to comparative freedom from sepsis? Whether due to an efficient use of 1 in 2,000 perchloride or not, the great improvement in Smith's proportion of infective losses, as compared with those of former times, must be well appreciated by the patients. On the other hand, late retinal detachment would not necessarily be connected by the patients with the operation.

Major Smith ought to refrain from publishing absolutely unwarranted and unjustifiable statements in a general medical journal, on a matter belonging to a special department of surgery. He speaks of "the invaluable after cataract" following ordinary extraction, and says "Whether the capsule is opaque or not before operation it is always opaque after operation." Though this would be discounted in an ophthalmic journal, it may be most misleading to general surgeons. In many eyes the posterior capsule is found absolutely transparent and smooth years after operation. Otherwise subsequent needlings would be the invariable rule in Europe and America, if indeed ordinary extraction were not given up altogether. I happened to have an opportunity of examining an old patient immediately after seeing Major Smith's paper. The right cataract had been removed by me in February 1902 and the left in January 1905. In the right eye the whole of the pupil and coloboma was absolutely clear, except for some minute marginal opacities, probably representing anterior capsule. In the left eye the opaque anterior capsule was readily distinguishable, but it did not occupy a position to interfere with direct vision, one has no right whatever to assume that these posterior capsules will ever change.

The present day practice of early needling of after cataract is a new departure. The conjunctival sac should be irrigated as for cataract extraction, the puncture made sclero corneal and sub conjunctival, the knife must be very narrow and sharp, and the cut in the capsule as long as possible. This procedure appears to be both thoroughly effective and quite safe, at least in eyes free from iritis. At present I do it ten or eleven days after the extraction, and send many of the patients out of hospital at once, with the eye bandaged for a day. The results will be published as soon as a sufficiently large number of cases has been accumulated.

A detail that is apt to be overlooked in comparing the liability to vitreous loss in the two operations, extraction with and without the capsule, is the extraordinary care taken in expressing the lens in its capsule. For the comparison to be just the same precautions should be taken in the ordinary operation, viz., (1) Extremely slow expression, and (2) the removal of the stop speculum as soon as the section has been made. I hope to have some thing further to say on this subject in the future. I readily admit that the higher percentage of vitreous losses in the complete operations is largely made up of small escapes. The inevitable losses—those which form the bulk of the accident in ordinary

extraction, and which are due to fault of the patient or defect of the eye—are usually large losses. Major Smith suggests that retinal detachments after operation are due, not to loss of vitreous, but to pressure on and behind the ciliary region during operation. This explanation does not apply in the least to the Bombay cases, and if seriously made should be supported by a considerable body of evidence, and published in an ophthalmic journal before an ophthalmological society.

I am afraid, it is impossible to supply Major Smith with our percentage of iritis. Judging from the appearances seen by focal illumination the day after operation, the large majority of our patients have some iritis. But very few of them ever have any symptoms, or require to be detained in hospital over the regulation ten or eleven days. Where the vision appears to be lowered by lymph deposits on the capsule, this is usually corrected by a needling. As regards the results of severe irido cyclitis, I have already mentioned the one case of closed pupil. There has been another partly closed pupil in a diabetic and albuminuric patient. Another patient, discharged with good vision, returned after three months with neglected irido cyclitis and sympathetic ophthalmia. And I have now a private patient affected with severe irido cyclitis. These are the only bad results possibly or certainly infective, that are known to have occurred in our present series of about a thousand operations. I do most emphatically hold "that iritis and irido cyclitis are without risk" in so far as they are caused by lens remnants, if the cases are properly treated. This is not opinion, it is simply observation.

The whole question is one of results. Until Major Smith is able to reduce his suppurations still further, it is open to us to assume that bacterial invasion is favoured by vitreous lying in the wound. I would very much like to practise the more brilliant operation but simply dare not, because we get better results under more conservative practice. Dr. Kenny, an eye specialist lately coming in India, at the close of his tour remarked to me that both in Madras and in Bombay the average patient appeared to be much too nervous and unsteady for Smith's operation.

H HERBERT, F R C S,
MAJOR, I M S

OPHTHALMIC HOSPITAL, BOMBAY,
19th April 1906

P S.—After reading Major Elliot's article in the *May Gazette* may I add that I heartily subscribe to every word he has said. In my article I purposely ignored Major Smith's many extraordinary contentions. It seemed so big a task to question all his unsupported expressions of opinion that there was danger of losing sight of the main issue. It is a pity Major Smith should have thought fit to use statements which can only tend to weaken his case in the estimation of ophthalmologists.—H H

IRRIGATION IN CATARACT

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I have read with great interest Dr. Wanless' paper on irrigation, in the *I M G* for April 1906. Dr. Wanless speaks of the complexity of McKeown's instrument. I would ask him to give it a trial. It is *simply and safely* in combination for anyone who has, likely most Indian operators, a number of cataracts to extract in one morning. I frequently extract 20 or more lenses with an irrigator which has been only once prepared, and that overnight. The arrangements are such that contamination is impossible during use. More over I would suggest for Dr. Wanless' consideration a point of some importance. He advises that the irrigator "should not be used in very nervous patients, or in those who have not fairly good control over the eyes, and who are unable to look down when requested to do so." Now it is in this very class of patients that I find the irrigator most valuable. McKeown's instrument leaves the operator with only one thing to think of, viz., the management of the nozzle he holds in his hand.

He is thus in a position to watch and quickly allow for any untoward or sudden movement on the part of the patient. Moreover he can, if necessary, keep the nozzle at the *very lips of the wound or even outside the chamber*, instead of having to introduce a hard instrument into the chamber. This greatly adds to the safety of the eye under operation, if the patient is restless, nervous and unreliable, the more so as we operate in a filled chamber with the hyaloid membrane pressed back out of the way of danger.

Dr. Wanless' ingenious instrument demands a double task of the surgeon, he has to watch the nozzle, and at the same time supply the water power by squeezing the bulb. How difficult it is to divide one's attention in this way we all know. I repeat with considerable emphasis that one of the great sources of power in McKeown's instrument lies in the fact that, while using it, one has not to worry about one's

'head of water.' A slight pressure of the thumb and forefinger stops the stream or lessens its strength at a moment's notice. That Dr. Wanless' instrument gives him a very great advantage over those who operate without irrigation I have no doubt and possibly for those who have few operations to do at a time, it may be as good a method as any, but I think it will have the disadvantage I have pointed out.

Dr. Wanless says that prolonged syringing should be avoided, and expresses the opinion that it leads to 'Stripped Descemetitis.' It is to be borne in mind that the cases in which one uses prolonged irrigation are those in which extraction is for some reason, difficult. It is in such eyes that we would expect striped keratitis in any case. *A priori* there would seem to be no reason why irrigation with a normal saline solution should in any way injure the tissues. Dr. Wanless has a fine record, when he is able to say that since using irrigation he has only had one case (in some 400) which left hospital before the descemetitis had cleared up. My strong impression is that irrigation with normal saline does not cause keratitis. Like Dr. Wanless I find that even when it occurs it is not a serious complication to an irrigated eye. A Yellow Oxide ointment (gr. 4 to oz. 1) hastens the clearing of the corner in such cases.

I do not think that Dr. Wanless or any of us need trouble ourselves about accusations of "fiddling" or "trying to do too much." It is easy to make such observations of a more or less cutting nature. The method will, in the long run, stand or fall by the results it yields to the majority of surgeons who are induced to give it a trial. To take a case in illustration, English writers of repute have condemned the practice of examining the eye the day after cataract extraction. It has always been my custom to examine every eye daily after extraction, and after years of experience of this practice, I unhesitatingly recommend it as the only safe means of being able to step in and arrest or rectify any complication that may arise before it has had time to do much harm. If, however, the section is weak, I often leave the eye bandaged for two or at the outside three days at a time during the after course, provided that in other respects the organ is perfectly quiet. In no department of surgery is the adage of "the stitch in time" more pertinent than it is in dealing with the complications that may occur in the after treatment of a cataract case. The epithet "middle some surgery" applied to this practice, undeserved and misleading.

I hope that Dr. Wanless will not resent my having so freely discussed his extremely interesting paper. My excuse is that the method he, so very ably advocates, is one of great interest to me. What he has written has been so full of suggestion that it is to be regretted, he has not given us his experience more fully. If he finds time to do so later, it cannot fail to be of advantage to all of us who are engaged in ophthalmic practice.

Yours truly,

R H ELLIOT, M D, B S (Lond.), F R C S,
(Eng.), etc., Major, I M S

THE BALANTIDIUM COLI IN INDIA

To the Editor of "THE INDIAN MEDICAL GAZETTE."

SIR,—As correspondence concerning the presence in India of *Balantidium Coli* has occurred recently in the *Indian Medical Gazette*, it may interest some of your readers to learn that of 920 male convicts admitted to our hospitals for dysentery in 1905, whose stools were examined microscopically, seven were found to harbour *Balantidium Coli*.

In one case only were the *Balantidia* unaccompanied by other protozoa, in two cases they were accompanied by *Monocercomonas hominis*, Grassi, vel *Protomyxomyces copularius*, Cunningham, and in four cases *Amoeba histolytica* and the above *Cercomonas*.

Blanchard states that *Balantidium Coli* was found in China and Cochin China in 1874, and American authors have recently recorded it in the Philippines, so that its occurrence in the Andamans is not at all unexpected.

Leuckhart and others found that this parasite inhabits the large intestine of the pig in Germany, Sweden, Italy and St. Petersburg. And on examining the rectum of the wild pig of these islands (*Sus Andamanensis*), I found *Balantidium* in the three intestines I obtained.

Twenty five years ago Losch and Raptchewsky are reported by Blanchard have treated cases of diarrhoea, in which *Balantidia* were found, with large doses of salicylic acid by mouth and enemata of the same drug 1,000 with the object of killing the *Balantidia* and so curing the diarrhoea. Two cases out of three were cured of the *Balantidia* and the diarrhoea ceased. The third case died.

The *Balantidium Coli* I found in the intestines of my patients, I believe to have been harmless to their hosts.

In conclusion, I may state that, if the glass slips covering preparations containing Balantidia be ringed with vaseline, the Balantidia will live for many hours and afford an interesting study

Yours faithfully,

A R S ANDERSON,
M B (Cantab.), C M Z S,
MAJOR, I M S

PORT BLAIR, ANDAMANS,
April 4th, 1906

CURIOUS FORMATION OF STONE IN THE BLADDER

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Although through the benevolent care of the Government a qualified medical man can be had free nearly in every subdivision, but the people still hesitate to come to the hospital until they have tried every quack and all sorts of rubbish medicines, one is generally called upon when it is either too late to do anything or the case is far advanced to be efficiently treated. This fact is better illustrated by the following case which we recently had in our hospital. A patient, Badal by name, aged 50 years, Hindu by caste, was admitted in this hospital on the 12th April 1906 with the complaint of scalding pain at the time of micturition and difficulty in passing urine. Duration two years. On enquiring the previous history he told that some two years ago he had gonorrhoea, of which he was cured by the application of some Indian medication, and after that he had the present complaints organic stricture of urethra was suspected, and to ascertain it a sound was passed when to great surprise the sound No. 12 passed and a large size soft stone was detected. There was no history of previous renal colic, no history of passing blood or sand, no history of any reflex symptoms. The only history available was of the previous gonorrhoea. Urine was examined, Phosphates and a good deal of albumin was found.

Patient after being prepared for operation in the usual way was put under chloroform and litholopaxy was performed by Dr. Van Mohan Das, M B, the Civil Surgeon. The stone was very soft and so he could easily crush it in one introduction of the lithotrite, and the time taken was not more than ten minutes. The evacuator was applied as usual and the pieces of crushed stone were removed, to satisfy whether there was any piece still remaining he introduced the sound in the bladder and found that on the base of bladder in prostatic pouch there was still something to be felt. Lithotrite was introduced but it would not catch. The bladder was then thoroughly washed when, to our great surprise, a piece of nim wood about an inch long, having at one of its end cotton wool wrapped up, was found in the evacuator. The contents of the evacuator then were carefully examined where it was found that there were many fibres of cotton wool incrustated with stone debris the bladder was rewashed and re-examined, nothing else could be found, the weight of the stone was 400 grs., and on examination chemically it was Phosphatic in nature. When the patient was free from the effect of chloroform, he was questioned as regard the piece of wood found in his bladder. He then informed that he applied some medication with a swab of nim some two years ago in his urethra but he carefully took it out. He said he did not know if any portion of it remained in urethra. The patient was kept in bed, his urine daily examined for further pieces of stone. He was sounded again on 21st, as no piece of stone detected was discharged cured.

The present case is written by the permission of the Civil Surgeon

Yours, &c.,

RAM SARUP SRIVASTAVA, B A, M B,
Asst. Surgeon

DISTRICT HOSPITAL, BARA BANKI,
25th April 1906

THE DATURAS OF MALAYA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I promised in a former letter from here to tell you what Professor Dunstan said about the daturas from the Federated Malay States. He has just written and says

"The *Datura fastuosa* seeds were found to contain 0.39 per cent of alkaloid, which was proved to consist almost entirely of hyoscyne (scopolamine)

The *Datura alba*, seeds only furnished 0.21 per cent of alkaloid, which was found to be chiefly hyoscyne with a little hyoscyamine

The small sample of supposed 'alkaloid' which was also forwarded, has been carefully examined, but no trace of alkaloid can be detected in it by means of the usual reagents. A little organic matter is present but the crystals consist of potassium chloride. The solanaceous plants, *Hyoscyamus*, *Datura*, etc., almost invariably contain large quantities of potassium chloride, often a little potassium nitrate as well, and these salts usually crystallise out from the alcohol used for extracting the alkaloid.

Datura alba, Nees, is now recognised as merely a variety of *Datura fastuosa*, L., and was included as such in the Indian and Colonial Addendum to the British Pharmacopoeia, 1898.

Several investigations of *Datura alba* are already on record. Poinmann and Hesse determined the amount of alkaloid in cultivated plants grown in South Germany, and Hesse concluded that the alkaloid present was chiefly hyoscyne. In 1900 Browne showed that the flowers of the Chinese *Datura alba* contained 0.48 per cent of alkaloid which he identified as hyoscyne. Later Hesse made an extended investigation of the flowers from the same source and found 0.55 per cent of alkaloid, the greater part of which—92 per cent—was hyoscyne and the remainder hyoscyamine with a little atropine.

The plant might therefore serve as a convenient source of hyoscyne, which is obtained at present from the henbane and scopolia roots used for the preparation of hyoscyamine. The total amount of hyoscyne used in medicine is not very large, however, and it is probable that adequate supplies of *Datura alba* could be obtained in Europe as the plant is largely cultivated in Southern Germany and elsewhere for ornamental purposes.

The alkaloid present in the seeds which were collected in Perak is therefore of similar nature to that previously found in the plant derived from other sources. The sample of *Datura alba* seeds contains much less alkaloid than the *Datura fastuosa*, but this difference is probably accidental and not characteristic.

We have been examining a number of solanaceous plants from India, including several species of *hyoscyamus* and *Datura Stramonium*, and we at present engaged upon the *Datura fastuosa* and *Datura alba* from that country. It will be interesting to see how the Indian plant agrees, as regards the nature and amount of alkaloid present, with the specimens from Perak and I will inform you upon this point when the investigation is completed.

Yours, etc.,

JOHN D. GIMLETTE

Kelantan, Singapore

RATS AND PLAGUE AT GIRIDIH

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—With reference to the letter of Major E. A. R. Newman, M D, I M S, on the subject of rats and plague at Giridih, I beg to state that inasmuch as the epidemic in the colliery area was confined only to a part of it, instead of taking into account the population of the whole colliery area, only the population of the area in which the plague epidemic actually occurred should be taken into account.

In accordance with the figures published by Major E. A. R. Newman, M D, I M S, it appears that the plague epidemic disappeared from the colliery area when 10,337 rats were killed. But subsequently about a lac of rats have been killed within the same area. So I am inclined to adhere to my belief that the disappearance of the plague epidemic from Giridih, as well as from the colliery area, is mainly to be ascribed to the climatic influences, and the rat-killing probably played a very minor part in the matter.

Yours, etc.,

SARASI LAL SARKAR

ASSISTANT SURGEON, RAJSHAHI

[We are afraid that few will follow Assistant-Surgeon S. L. Sarkar in attributing the disappearance of plague to anything so vague as "climatic influences." Something more definite is wanted.—Ed., I M G.]

MALARIAL FEVERS IN INDIA

To the Editor of "THE INDIAN MEDICAL GAZETTE."

SIR,—I welcome Colonel Hamilton's letter in the May number of the Journal as on "Remittent Fever," as discussion on the point he refers to is eminently desirable, but at the same time I submit that it would be most fallacious to assume that every attack of fever he relates was malarial on the strength of the parasites having been found in the last only. The correctness of my conclusions as regards

the very short duration of malarial fevers under efficient quinine treatment in Calcutta was recently strikingly demonstrated by the occurrence of some cases of longer duration being traced to the fact that the quinine solution they had been taking was found on chemical analysis to contain less than half the amount of quinine ordered.

That malarial fevers in other parts of India may be of a more severe type than those of Calcutta is quite conceivable, although the accounts of "Bengal Remittents" by such old writers as James Johnstone and Twining reveal a malignancy which would be hard to beat, while five fatal cases occurred in my series, and personally I very much doubt whether any marked differences will be found between malarial fevers of Calcutta and those of other parts of India. My object, however, in writing this letter is to appeal for the systematic investigation of the fevers of other places on the lines I have recently been working on in Calcutta, as it is only by the examination of a large consecutive series of fever cases throughout at least a year that the prevalence and degree of malaria in any given place can be ascertained, and the presence or absence of "the seven day fever," recently described by me, can be decided. It is very difficult for the busy Civil Surgeon to carry out such work, although I have known it done by them, but I would appeal to the I M S men in charge of native regiments to examine every case of fever admitted to their hospitals for malarial parasites, and to preserve brief notes and charts of the cases for subsequent analysis, the varieties of the parasites being noted. The coming rainy season is a favourable time to start such work, and a little Leishman stain and an oil immersion lens are the only requirements, while, if there are any who are deterred by some doubt as to being able to spot the different kinds of malarial parasites, I shall be glad to send them typical stained specimens to study, or to demonstrate them in the Medical College laboratory here, if they can spare a few days to visit Calcutta.

Lastly, may I take this opportunity of asking for any information, positive or negative, as to the prevalence in different parts of India of the cachectic fever due to Leishman Donovan bodies, as I require it for the Milroy lectures, and shall be glad to examine and report on slides of spleen blood from any cases sent to me, obtained by spleen puncture during life or after death or taken at a *post-mortem*.

Yours, etc.,

LEONARD ROGERS, I M S

[We commend this letter to Medical officers in military employ—*Ed, I M G*]

Service Notes

SURGEON GENERAL BROWN, C.I.E., Madras, took leave, and Colonel Benson, I M S, I M O, acts for him as Surgeon General with the Government of Madras.

MAJOR H AUSTEN SMITH, F.R.C.S., was on study leave from October 9th, 1905, to February 9th, 1906.

CAPTAIN E L PERRY, I M S, was on study leave from September 1st, 1905, to 31st December 1905.

LIEUTENANT COLONEL J MITLAND, M.D., I M S (Madras), has got six months' extension of leave, viz., three months and seventeen days, remaining period being extraordinary leave. He has since applied to retired from the service.

MAJOR R H MADDON, I M S, Civil Surgeon of Ranchi, has obtained combined leave for eighteen months from 13th April. Major E A R Newman, M.D. (Cantab.), I M S, succeeded him at Ranchi and Captain Clayton Lane, M.D. (Lond.), has gone to Bhagpur as Civil Surgeon.

LIEUTENANT COLONEL H E BANATVALA, I M S, is granted six weeks' privilege leave from 1st May.

COLONEL R MACRAE, I M S, Inspector General of Civil Hospitals, Bengal has gone on seven months' leave, and Colonel A M Crofts, C.I.E., acts for him.

The following promotions are made in the Indian Medical Service—Majors P Behar, F J Pisani, W R Edwards, C Macaggart, G I H Bell, I T Daly, H Fooks, E Hudson, A W Dawson and W H Robinson, to be Lieutenant-Colonels, and Captains W Lamb, H Burden, C H Bowles Evans, J Fisher, E S Peck, S A Harris, E C Macleod, C Thomson, D W Sutherland and W Selby, to be Majors, from this it is seen that Major Sutherland and Major Selby have received six months' accelerated promotion of the July 1894 batch, and Lamb, Burden and Bowles Evans of the January 1894 batch.

BRIGADE SURGEON J LAW, I M S (ret'd), who recently left Rs 10,000 to the Duffin Fund, entered the Madras Medical Service as Assistant Surgeon on 28th May 1853, served in Bundelkand during the Mutiny in that year, became Surgeon 28th May 1870, and Surgeon Major, 1st July 1873. He retired on 1st February 1882 with the honorary rank of Brigade Surgeon.

MAJOR E HAROLD BROWNE, I M S, M.D., Civil Surgeon, Alipore, Calcutta, took a month's privilege leave during May, and Captain J J Uwin, I M S, acted for him.

MAJOR A H NOTT, M.B., I M S, Civil Surgeon of Munshabad, has gone on furlough, and Captain E E Waters, I M S, acts for him.

CAPTAIN W LAPSLEY, I M S, has received three months extension of leave, on medical certificate.

THE Government of India have ruled that Ward Orderlies sent to medical schools as native military pupils, will be subject to the same conditions (Army Regulations, India, Volume VI, Appendix II) as apply to ordinary candidates for admission to a medical school with a view to qualifying as hospital assistants, with the modification that the maximum age in their case is extended to 25 years.

THE following appeared recently in Northern Command Orders—

Hospital Equipment—It has been brought to notice that the State is put to unnecessary loss through large condemnations of hospital equipment which are due to soldiers in hospital refusing to accept any article which may be in the slightest degree damaged owing to their fear of being debited with the cost. To obviate objection on the part of patients to receive such articles, it is enjoined on all concerned that the condition of the articles at the time of issue be entered on India Army Form M 1223. Articles so issued should be accepted.

LIEUTENANT COLONEL E P FRENCHMAN, I M S, obtained six weeks' privilege leave and Lieutenant Colonel R E S Davis, I M S, acted as Inspector General of Prisons, Burma. Lieutenant Colonel Davis was for many years Superintendent of the Central Jail, Rangoon, and has been for some years past Civil Surgeon of Rangoon.

LIEUTENANT COLONEL J R ADIE, I M S, has obtained study leave out of India for six months.

MAJOR G McI C SMITH, I M S, Civil Surgeon, Gurdaspur, has obtained nineteen months' combined leave.

DRESS—BRITISH OFFICERS—The following extracts from Army Orders Nos 186 and 238 of 1905 regarding the wearing of miniature decorations with mess dress and with evening dress (plain clothes), on State, public or official occasions, are republished for information—

"Miniature decorations will be of the same size as miniature medals. A Knight Grand Cross, Knight Grand Commander, Knight Commander, or Commander will wear the miniature of the Companionship or Membership of the Order. When the miniatures of the orders of the Bath or of St Michael and St George are worn by a Knight Grand Cross or a Knight Commander, the buckle will be omitted."

"When the miniature of a higher grade of a Junior Order is worn with the miniature of a lower grade of a Senior Order, the higher grade miniature should come first, e.g., before a C.B., and a miniature of a K.C.I.E., will come before a C.B., and a miniature of a C.M.G. worn by a G.C.M.G., before that of a C.B. worn by a K.C.B."

CAPTAIN L B SCOTT, M.B., I M S, is appointed to the medical charge of the 8th Rajputs, vice Lieutenant-Colonel Nandi, retired.

CAPTAIN F P CONNOR, I M S, is appointed to the charge of the 13th Rajputs.

THE following Notifications by the Government of India in the Home Department are republished in the *E B & A Gazette*—

No 346 (Medical), dated the 9th April 1906—The Home Department Notification No 248, dated the 16th March 1906, placing the services of Captain C G Seymour, I M S, temporarily at the disposal of the Government of Eastern Bengal and Assam, is hereby cancelled.

No 347 (Medical), dated the 9th April 1906—The services of Captain L B Scott, M.B., I M S, are placed temporarily at

the disposal of the Government of Eastern Bengal and Assam

CAPTAIN L B SCOTT, I M S, is appointed to officiate as Civil Surgeon, Cachar, with effect from the date on which he may receive charge from Captain W V Coppinger, I M S. This cancels Notification No 3412 J, dated the 29th March 1906, appointing Captain O G Seymour, I M S, to officiate as Civil Surgeon, Cachar

THE Home Department Notification No 248, dated the 16th March 1906, placing the services of Captain O G Seymour, I M S, temporarily at the disposal of the Government of Eastern Bengal and Assam is hereby cancelled

THE leave on medical certificate granted to Captain E L Perry, I M S, Civil Surgeon, in *Punjab Government Gazette* Notification No 552, dated the 3rd of June 1905, has been extended by His Majesty's Secretary of State for India by a period of four months

SENIOR ASSISTANT SURGEON KRISHEN CHAND, in charge of the Civil Hospital, Guindaspi, is appointed to officiate as Civil Surgeon of Guindaspi, in addition to his own duties, with effect from the afternoon of the 28th of March 1906, vice Major G McI C Smith, I M S, proceeding on leave

ON transfer from Jhelum, Captain M Corry, I M S, assumed charge of the duties of Civil Surgeon of Lyallpur on the afternoon of the 31st of March 1906, relieving Major E S Peck, I M S

LIEUTENANT COLONEL W COATES, M D, I M S, Civil Surgeon, Lahore, has obtained privilege leave of absence for seventeen days and leave on medical certificate for five months and thirteen days in continuation thereof, under Articles 260, 233 and 311 of the Civil Service Regulations, with effect from the 15th of April 1906, or the subsequent date on which he may avail himself of it

MAJOR G Y C HUNTER, I M S, whose services have been placed temporarily at the disposal of this Government by the Government of India in the Home Department is appointed to officiate as Superintendent of the Montgomery Central Jail and Civil Surgeon of Montgomery, with effect from the afternoon of the 29th of March 1906, vice Captain D H F Cowin, I M S

CAPTAIN C J ROBERTSON MILNE, I M S, Superintendent, Punjab Lunatic Asylum, Lahore, is appointed to officiate as Superintendent of the Lahore Central District and Female Jails, in addition to his own duties, with effect from the afternoon of the 3rd of April 1906, vice Major G F W Braide, I M S, proceeding on leave

MAJOR C T BIRDWOOD, M D (Cantab), I M S, Civil Surgeon Agra, is granted privilege leave for two months and twelve days from 4th May, and Captain H J Walton, F R C S, acts for him at Agra

MAJOR W D SUTHERLAND, I M S, Akola, is granted eighteen months' combined leave from 15th May, and Captain P F Chapman, I M S, is transferred as Civil Surgeon to Akola

WITH effect from 6th April 1906, Captain H Ainsworth, I M S, is transferred to Lahore for plague duty

CAPTAIN J STEPHENSON, I M S, succeeded Captain Ainsworth, I M S, as Civil Surgeon of Shahpur

MAJOR E S PECK, I M S, made over charge of Lyallpur Camp Jail to Captain M Corry, I M S, on 31st March 1906

AT the examination for the Diploma of Tropical Medicine, Liverpool, held on 26th to 28th March 1906, Major N Faichnie, R A M C, Major A Pearce, R A M C, and Captain R D Wilcocks, I M S, have passed

THE report of Lieutenant Colonel W G Macpherson, C M G, R A M C, to the Director of Military Operations on the organisation of the Red Cross Society of Japan is published in the *R. A M C Journal* for April

MAJOR J J BOURAE, I M S, Deputy Assay Master, Calcutta Mint, went home on three months' privilege leave early in April, on his return he probably will be posted to the Bombay Mint

LIEUTENANT-COLONEL F MACCARTIE, I M S, M B (Dub), C I E., for several years past Assay Master in the Calcutta Mint, has gone to the Bombay Mint, vice Lieutenant-Colonel Milne, on leave

MAJOR J T Lloyd Jones, I M S, has returned to Calcutta as Assay Master, vice Colonel F MacCartie, I M S

APPOINTMENTS—REGIMENTAL—The LIEUTENANT GENERAL Commanding makes the following appointments—

1st Lancers—Lieutenant V N Whitmore, I M S, to the officiating medical charge of the regiment

2nd Lancers—Lieutenant L A H Lack, I M S, to the officiating medical charge of the regiment

33rd (P W O) Central India Horse—Captain H Emslie Smith, I M S, to the medical charge of the regiment, *pro tem*

Wing—3rd Brahmins—Lieutenant N S Sodhi, I M S, to the medical charge of the Wing at Dibrugarh

13th Rajputs—Captain E P Connor, I M S, to the medical charge of the regiment

CAPTAIN R M DALZIEL, I M S, is granted three months' special leave, and Captain N S Wells, I M S, acts as Superintendent, of the Central Jail at Buxar

HIS Excellency the Governor in Council is pleased to appoint Dr J S Fraser to act as Civil Surgeon, Roach, vice Major W S P Ricketts, M B, I M S, pending further orders

HIS Excellency the Governor in Council is pleased to make the following appointment, vice Lieutenant-Colonel J W T Anderson F R C S (Edin), I M S, retiring—

Major W E Jennings, M D, D P H, I M S, to be Civil Surgeon and Superintendent, Byramji Jijibhai Medical School and Lunatic Asylum, Ahmedabad

DR. E H MOORE to act as Civil Surgeon, Panch Mahals, pending further orders

HIS Excellency the Governor in Council is pleased to appoint Captain G McPherson, M B, I M S, to be Superintendent, Plague Operations, vice Major W E Jennings, M D, D P H, I M S, pending further orders

CAPTAIN R W ANTHONY, I M S, took charge of Ratnagiri Prison on 3rd April 1906

MAJOR R J MARKS, I M S, Civil Surgeon, Saharanpur, was granted two months and 24 days' privilege leave from 7th May 1906

MILITARY ASSISTANT SURGEON PARKINSON, Civil Surgeon, Fatehpur, obtained two months and seventeen days' privilege leave from 1st May

DR H A. MACLEOD is appointed Civil Surgeon of Saharanpur

CAPTAIN N S WELLS, I M S, has come to Bengal for service in the Jail Department, and is posted to Buxar temporarily, as Superintendent

THE following promotions and reversions among Civil Surgeons in the Punjab are published for information in the *Punjab Gazette*—

Consequent on the departure of Lieutenant-Colonel S Little, I M S, Civil Surgeon 1st Class, on privilege leave, Major W R Clark, I M S, Civil Surgeon, 2nd Class, officiated as Civil Surgeon, 1st Class.

Consequent on the confirmation of Lieutenant Colonel H Hendley, I M S, as Civil Surgeon, 1st Class, Major A Coleman, I M S, Civil Surgeon, 2nd Class, officiated as Civil Surgeon, 1st Class

Consequent on the return from privilege leave of Lieutenant Colonel S Little, I M S, Civil Surgeon, 1st Class, Major W R Clark, I M S, continued to officiate as Civil Surgeon, 1st Class, and Major A Coleman, I M S, Civil Surgeon, Officiating 1st Class, reverted to the 2nd Class

Consequent on the departure of Lieutenant-Colonel Coates, I M S, Civil Surgeon, 1st Class, on privilege leave, Major A Coleman, I M S, Civil Surgeon, 2nd Class, officiated as Civil Surgeon, 1st Class

Consequent on the return of Lieutenant Colonel Coates, I M S, Civil Surgeon, 1st Class, Major A Coleman, I M S, Civil Surgeon, Officiating 1st Class, reverted to the 2nd Class

Consequent on the deputation of Major W R Clark, I M S, Officiating Civil Surgeon, 1st Class, on special duty at Lahore, Major A Coleman, I M S, Civil Surgeon, 2nd Class, officiated as Civil Surgeon, 1st Class, up to the 7th December 1905

MAJOR G B IRVINE, I M S, assumed charge of the duties of Civil Surgeon of Jhelum on the afternoon of the 24th March 1906, relieving Captain M Corry, I M S

WITH reference to the Notification of the Government of India in the Home Department, No 189, dated the 27th of February 1906, Captain G E Charles, M B, I M S, assumed charge of his duties as Officiating Professor of Anatomy, Lahore Medical College, on the afternoon of the 20th of March 1906 relieving Major J O Lamont, M B, I M S, proceeding on leave

COLONEL T H HENDLEY, C I E, I M S (ret'd), formed one of a deputation recently from the National League for Physical Improvement to the President of the Board of Education in London

NEW revised rules for the management of hospitals and dispensaries in Bengal are published in the *Calcutta Gazette* of 4th April 1906

DURING the deputation of Lieutenant-Colonel R E S Davis, I M S, to act as Inspector General of Prisons, Burma, Major J Penny, I M S, acted as Civil Surgeon of Rangoon and Hanthawaddy Districts

CAPTAIN N E H SCOTT, I M S, is appointed to the medical charge of 30th Punjabis

MAJOR T JACKSON I M S, was granted leave on medical certificate for twelve days from 17th February

MAJOR J B SMITH, M B, M Ch I M S, is granted, from the date of relief, such privilege leave as may be due to him on that date in combination with furlough for such period as may bring the combined period of absence up to one year and six months

HIS Excellency the Governor in Council is pleased to make the following appointments, vice Major J B Smith, M B, M Ch, B A, I M S, proceeding on leave, pending further orders —

Major C T Hudson, I M S to act as Civil Surgeon, Belgaum

Major W S P Ricketts, M B, I M S, to act as Civil Surgeon, Nasik

MAJOR W H W Elliot, D S O, I M S Secretary to the Principal Medical Officer, His Majesty's Forces in India, for eight months on private affairs, under the Leave Rules of the Indian Army (the first 90 days on privilege leave) Pension service 19th year commenced 4th July 1905

MAJOR JAY GOULD, M B, I M S, to officiate as Personal Assistant to the Principal Medical Officer, Eastern Command, vice Major B G Seton, I M S., appointed to officiate as Secretary to the Principal Medical Officer, His Majesty's Forces in India

A VERY successful I M S Dinner was held on St Patrick's Day in Bombay in the Moorish Drawing Room of the Taj Mahal Hotel, under the presidency of Surgeon General J Greany, Major J T Lloyd Jones, I M S, acted as Honorary Secretary to the Dinner, which we hope will be an annual institution

THERAPEUTIC NOTES AND PREPARATIONS

IN view of the practice only too common on the part of the public of dosing themselves with "patent medicines," it is necessary for the medical man to know what these preparations are made of. We quote from Dr R. Hutchinson's (*Patent Foods and Patent Medicines*)* and from Colbeck and Chaplain's little book on *The Science and Art of Prescribing*,† both little books well worth the perusal of the medical man

<i>Beecham's Pills</i>	= Aloes, ginger and soap
<i>Bile Beans</i>	= Cascara, rhubarb, liquorice and peppermint.
<i>Cockle's Pills</i>	= Aloes, colocynth and rhubarb
<i>Carter's Little Liver Pills</i>	= Podophyllin ($\frac{1}{2}$ grain) and aloes soc $\frac{1}{2}$ gr in each pill
<i>Eno's Fruit Salt</i>	= Soda bicarb, tartaric and citric acids.
<i>Lamplough's Purgative Saline</i>	= Citric acid with bicarbonate of soda and potash
<i>Keating's Cough Lozenges</i>	= Ipecac., squill, lactuaria and liquorice
<i>Oxbridge's Lung Tonic</i>	= Tolu, oil of aniseed and oil of cloves
<i>Blair's Gout Pills</i>	= Colchicum
<i>Antilamnia</i>	= Antifebrin and bicarb of soda

* Second Edition Bale Sons & Danielson, price 1s

† Second Edition, Henry Kempton, 1906, price 8s 6d

<i>Bunter's Nervine</i>	= Creasote, chloroform, camphor and tolu.
<i>Mr Allen's Hair Restorer</i>	= Acetate of lead, milk of sulphur and oil of cinnamon
<i>Tatcho Koko</i>	= Oil of paraffin and oil of lemon
<i>Harlene</i>	= Borax, glycerine and rose water
<i>Trilene tablets</i>	= Glycerine, alcohol, ammonia and oil of cassia
<i>Russel's Anti corpulent Cure</i>	= Sugar and an unknown vegetable
<i>Californian Syrup of Figs</i>	= Citric acid (40 gr to 1 oz), glycerine and water
<i>Doan's ("Backache") Pills</i>	= Senna with figs and cinnamon (aperient) Podophyllin, aloin and rhubarb
	= (Backache pills) Juniper and (?) copaiba
<i>Guy's Tonic</i>	= Phosphoric acid, cochineal, gentian and chloroform
<i>Clarke's Blood Mixture</i>	= Iodide of potassium (6 gr to 1 oz.)
<i>Pink Pills</i>	= Iron sulphate, liquorice and carmine
<i>Sergel's Syrup,</i>	= Aloes, capsicum, liquorice and treacle
<i>Warner's Safe Cure</i>	= Nitrate of potash and diuretic herbs
<i>Vanilas</i>	= Pot bromid, butyl, chloral, citric acid, &c
<i>Antidipso</i>	= Sugar and chlorate of potash

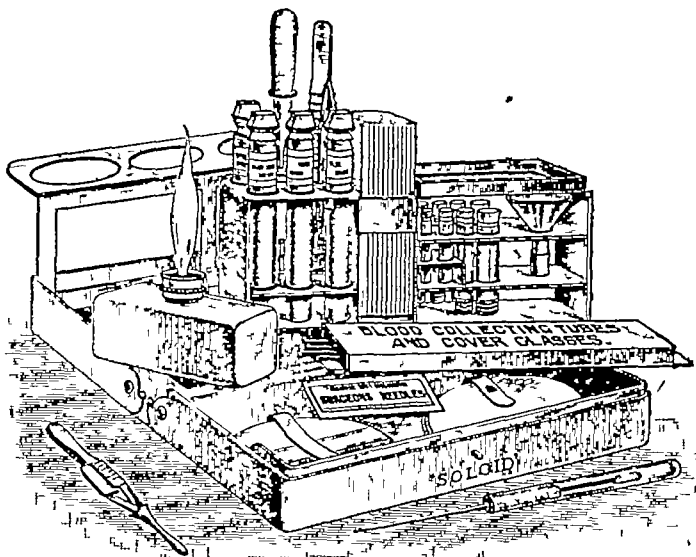
"SOLOID" BACTERIOLOGICAL CASE

THIS case is designed to meet the requirements of practitioners at home and abroad. Many doctors have not access to a completely equipped bacteriological laboratory and by lack of equipment are debarred from pursuing their own investigations

With the aid of the "Soloid" Case the bacteriological investigations, which are by most practitioners referred to laboratory workers, can be undertaken with ease and convenience in the surgery. The case keeps together in a compact form and in a minimum of space the essentials for such works. Owing to its small size and light weight, it is easily carried, and the physician can utilize it at the patient's bedside, to obtain a blood sample, or a throat swab

In expeditions and in practice entailing long journeys at home or abroad the "Soloid" Bacteriological Case provides the necessary equipment for clinical examination by the most recent scientific methods

The "Soloid" Bacteriological Case brightens the routine of daily practice. It gives to every practitioner the means of keeping abreast of the latest advances of pathology, its use widens his interests and improves his outlook, benefits which are reflected in his appreciation and comprehension of the most modern and most scientific methods of diagnosis and treatment



SOLOID BACTERIOLOGICAL CASE

The "Soloid" Case contains —

3 N M stoppered bottles containing—	
Methyl alcohol	1½ drms
Absolute	1½ drms
Distilled Water	1½ drms
1 W M Rod Stoppered Bottle containing Canada Balsam	

- 1 Graduated Pipette
- 1 pair Forceps (Small Tweezers)
- 1 pair Bull Dog Forceps.
- 12 Microscopic Slides
- 1 Spirit Lamp
- 1 packet Needles (straight No 9)
- 1 Funnel
- 2 Watch Glasses
- 1 packet Filter Papers in parchment envelope
- 12 Blood Collecting Pipettes
- 50 Cover Slips
- 1 tube each "Soloid" Microscopic Stains
- Methylene Blue
- Eosin
- Methyl Violet
- Fuchsin
- Romanowsky
- Eosin Methylene Blue
- Hematoxylin (Delafield)
- Gentian Violet
- 1 Swab

CHRONIC AND RECURRENT COUGHS AND THEIR TREATMENT

ABSTRACT of article by J E Altet, M D. In treating coughs we quite often encounter obstinate cases, which, no matter what combative measures may be instituted, will continue without abatement. Such cases are best classified as the Chronic Cough and the Recurrent Winter Cough. Both of these classes are extremely obstinate in their course and yield reluctantly to treatment. They are usually of long duration, and, while not, in themselves, directly dangerous, may become so by inducing emphysema and bronchiectasis.

In the great majority of chronic and recurrent winter coughs, the basic trouble lies in a low form of inflammation of the bronchial mucous membrane, especially that of the bronchioles.

In many cases I have used Codein, but lately I have been having much more success with another derivative of opium, *i.e.*, heroin. In comparing the results obtained from the use of these two drugs, I notice that heroin will not constipate the patient, nor will it have the stupefying effect characteristic of codeine. Another advantage possessed by heroin is that it is effective in young children, in very small doses.

I had been accustomed to prescribe heroin alone, but about a year ago, my attention was called to a preparation of that drug GLYCO HEROIN (SMITH). Upon giving it a good trial I found that it gave me better results than obtained when heroin alone was given, and much more quickly. GLYCO HEROIN (SMITH) has one distinct advantage over plain heroin in that it can be given for a long time without ill effects, and in the class of patients in question, this is, indeed, a most important feature. During the past year and a half I have treated a number of cases and recurrent winter coughs with Glyco Heroin (Smith) and have obtained uniformly good results.

Example—A L, Salesman aged 28. I saw this patient early in the spring of 1903. He is robust and of good habits. He consulted me concerning a constant cough which had troubled him for over a year. It was usually worse in the morning and after meals, and accompanied by expectoration of thick mucopurulent matter. Sometimes blood stained, and especially so after a severe paroxysm. This circumstance preyed upon his mind considerably, he thought he had consumption. I learned that he had had a severe attack of acute bronchitis during the spring of 1902 and had been coughing ever since. Physical examination occluded tuberculosis. The diagnosis was chronic bronchitis, sequential to acute. The patient was immediately put on Glyco Heroin (Smith) and the same hygienic measures ordered as in Case 1. Here again the financial condition of the patient precluded change of climate. In addition to the Glyco Heroin (Smith) the patient was given syrup of hypophosphites as a tonic. I did not see him again until last October. He then reported himself absolutely free from cough. He continued taking the Glyco-Heroin (Smith), and, during the present winter, has not experienced any return of the trouble. In this case a complete cure was effected by means of quieting the cough and stopping the irritation of the mucous membrane, in this manner allowing the restorative powers of the body, aided by the tonics and good hygiene, to accomplish a cure.

Example—Miss, R M aged 24, Teacher. This lady had been coughing ever since she was nineteen years of age. At that time she had had an attack of rheumatism with a complicating bronchitis. After the acute condition had moderated, she continued to cough, the cough being very annoying in character spasmodic and prolonged. After each paroxysm she was left in a state of exhaustion. During the attacks she urinated involuntarily. On examination she was found to have chronic bronchitis, aggravated by an exceedingly irritable condition of the spiratory tract. The mere

odour of cigar smoke was sufficient to induce a paroxysm of coughing. In treating this patient it was necessary to devote attention to the neurasthenia as well as the chronic bronchitis. She was placed on a diet and her mode of living regulated. Arsenic, strychnine and iron in pill form were given. For the cough, I ordered Glyco Heroin (Smith). The improvement was marked and rapid. The general nervous condition became much improved and the cough grew much less severe and gradually lost its spasmodic character. At the present time it amounts to but little more than a "clearing of the throat." This case, more than any other demonstrated the excellent properties of Glyco Heroin (Smith). The quick relief afforded was surprising and no more gratifying to the patient than to me.

THE value of the VAPOCRESOLENE preparation, as a medicated inhalation in diseases of the air passages, such as whooping cough, croup, bronchitis, hayfever asthma and influenza is well known recently our attention has been directed to it as a means of keeping away mosquitoes.

The Vaporizer is an apparatus which works well and is compact and convenient to use. It stands six inches high and consists of a bronze standard holding a metal hot air chamber and saucer in which the cresolene is vaporized. The cresolene is a pure product and does not irritate the air passages.

CORRIGENDA—We are requested to state that the letter in our last issue on the treatment of cholera signed Chanchal was written by Assistant-Surgeon H O Bannerjee, the Medical Officer at Chanchal.

In Major Elliot's article on cataract in our last issue (May), page 165, col 1, last para 3rd line, should read "lens has been extracted after lacerating the capsule," page 165, col 2, 3rd para last line should read "three can be counted as only partial successes."

Notice

SCIENTIFIC Articles and Notes of Interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis if requested.

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co., Calcutta.

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co., Calcutta.

Annual Subscriptions to the *Indian Medical Gazette*, Rs 12, including postage, in India. Rs 14, including postage, abroad.

BOOKS, REPORTS, &c, RECEIVED—

- The Bengal Sanitary Commissioner's Report
- Science and Art of Prescribing Colbeck and Chaplin (H Kimpton).
- Aids to Surgical Diagnosis Carson (Bailliere, Tindall & Cox)
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Original Articles.

THE SUPPLY OF DRINKING WATER IN INDIA AND ITS CONNECTION WITH THE SUBSOIL WATER

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THIS paper is written with the object of giving a possible explanation of the outbreak of diseases, such as enteric, cholera, &c, which sometimes occur when all recognised precautions have been taken. In India most of the water used for drinking and domestic purposes is obtained from wells, therefore a knowledge of the construction of same and their sources of supply is of great importance.

Wells may be divided into two classes (a) shallow, (b) deep. A shallow well draws its water-supply from the subsoil, while in a deep or artesian well, the water is obtained from below some impervious stratum, which separates it from the subsoil above.

By far the larger number of wells met with belong to the first class. The remainder are deep or artesian wells and should always yield good water, but often on account of faulty construction, communication with the subsoil water and consequent contamination occurs. Sometimes the spring (artesian) water may ascend to a higher level than the subsoil water. If this be the case, water will flow from the artesian well into the subsoil, and the well water will probably remain pure, but on the other hand if the subsoil water level is higher (temporary or otherwise), the reverse is often the case, and if the subsoil water is impure it may pollute that in the well. Pipes used for pumping purposes are also a source of danger (*vide* Dr G Turner's report on the water-supply to the Suffolk County Lunatic Asylum, in which two outbreaks of dysentery occurred due to leakage in the pipes), and considerable difficulties are met with in preventing pipe leakage and the results are always uncertain. It is therefore evident that no well water can be relied upon unless the purity of the subsoil water is above suspicion.

The direction of the subsoil water flow is usually towards some river, proceeding more or less in channels. The deepest parts form streams which are fed by smaller tributaries, so that generally speaking, certain areas of ground are drained by certain underground streams, much in the same way as the surface of the earth is drained. The rate of the movement of the subsoil water is slow, depending upon the nature of the subsoil, but in the so-called stream it may travel very rapidly. Now every one appreciates the importance of, say, when troops are encamped on the banks of a river, arranging to draw

the drinking water from up stream, and only allowing animals to be watered, &c, down stream, and, I think, it is scarcely less important to make corresponding arrangements in regard to the subsoil water-supply.

Thiesli takes a square mile occupied by 1,400 people, and finds the water obtained from three sides constant and free from organic impurities, but the water from the fourth side (the direction of the subsoil water flow) varied, and was often impure and unfit for domestic purposes. As most stations in India are occupied by more than 1,400 people to the square mile, wells on side of subsoil water flow are likely to be even more polluted.

During a small outbreak of enteric in a station where I was posted, the S M O himself analysed the water in every well. While I, unknown to him, by means of a contour map of the subsoil water of the station (Figure 2), classified all the wells as bad, good, etc, and his classification of the wells from the chemical examination and mine, corresponded throughout. My classification was made by condemning wells receiving their supply from an impure source and *vice versa*, and I feel certain that if contour maps were made of all thickly populated areas, many wells would be put out of action with advantage to public health.

This examination of the source of water-supply to a well appeals to me to be of greater advantage than examining a well chemically, because the well water may sometimes be pure, and at other time polluted and unfit for drinking purposes. The same applies to the beforementioned deep or artesian wells, and it is quite possible that this temporary infection of wells is a cause of occasional outbreaks of diarrhoea, dysentery, &c, the well water being unquestioned, because from constant use and may be occasional analysis, it is thought to be pure. An instance of this is shown in well (E) Figure 1, which is a case that has come under my notice.

The well (A) receives its water-supply from subsoil stream (C), the subsoil water-supply of which is contaminated by a large bazaar.

The well (B) receiving its water from stream (D) is pure, and the source of supply beyond contamination as it is protected by a large parade ground, and the country beyond is not thickly populated.

The well (E) is usually good, but may be temporarily contaminated, due to heavy rainfall when the stream (C) swells to level (F), the water in well (E) becomes polluted.

If the ground in the neighbourhood of stream (D) was in any way fouled, it might after a heavy rainfall become contaminated, as a matter of fact it is not, and (B) is a constant and pure supply. Well (C) has been closed and water from well (E) only used after being boiled. Arrangements are being made to close (E) and convey water from (B) by means of pipes.

It would therefore appear that much might be done to further improve the health of Indian stations by paying more attention to the geological formation of the ground in the vicinity of the station and specially to the origin, course and protection of the subsoil water, and for this purpose I think that a contour map of the subsoil water, made by an Engineer, and giving the rise and fall of subsoil water and other necessary geological data, should be made of every station, thus forming a basis upon which to work. A map of this kind seems to me to be as important to those responsible for the Hygiene of Indian stations as a detailed map of the country is to the strategist.

Some place great faith in the purifying property of the earth, and hold that after the rain has passed through a sufficient thickness of this natural filter, micro-organisms are not found, and that the water is free from organic matter. Koch is a great adherent to this, but other authorities are equally against it in practice. The town of Frankfort derives a good water-supply from the subsoil water of an extensive wood, but this wood is carefully kept free from habitation and other sources of contamination. No authority would, however, infer that you can with impunity dispose of refuse or have bazars, graveyards, &c, over your origin of subsoil water, certain conditions are absolutely necessary before the subsoil water can be in any way trusted, namely, (a) the locality must not be thickly populated, (b) any refuse to be disposed of must be spread over large areas, and on no account put in pits, (c) there must be a *living* surface and on no account must this be removed, (d) the porous filtering subsoil must be of a sufficient thickness, if too thin then its purifying power by oxidation and filtration is limited, and the rise of the subsoil water must on this account be known. Here also it is important to know the character of the filtering media. If of a sandy nature, purification can take place by virtue of oxidation assisted by periodic flushing, on the other hand if the subsoil contains much clay, especially black clay in which there is a large percentage of organic matter, such a process of purification is impossible, and we have in fact a culture medium. Now we cannot know that these necessary conditions exist, unless a thorough examination of the ground has been made, and therefore the importance of a thoroughly reliable map. Caution must be exercised when reliance is placed upon the purifying property of the soil, especially if the characteristics be unknown, for the soil is after all a filter, and all filters, whether artificial or natural, are treacherous, and are a source of danger, if not constantly attended to by some competent person.

One must also be always on the look out for the formation of fissures, which may occur at any time and at once destroy one's filter, especially in view of the fact that impurities

may travel long distances in fissures without undergoing oxidation or change. For example, the cause of the epidemic of enteric at New Harrington was traceable to a drain three-quarters of a mile away, and due to a fissure in the subsoil stratum. The above applies to subsoil water, but it is also important to know all about your collecting surface of the supply to deep or artesian wells, if far away the water will probably be pure, but if within a few miles the collecting surface ought to be protected. Especially is this the case if the soil is very porous or fissured.

Another source of pollution to be carefully guarded against is the presence of disused wells which are often used by natives for unsanitary purposes. Should these wells be situated on the up-stream side of the station, they obviously are a source of great danger, and clearly shew the necessity of keeping all the wells over the source of the water-supply under rigid supervision.

That subsoil water ought to be protected, can be seen from the following list of waters arranged according to purity —

- 1 Deep spring water, (2) Deep well water, (3) Upland surface water, (4) Moorland water, (5) Subsoil water (distant from aggregation of houses), (6) Land springs, (7) River water, (8) Subsoil water (under villages and towns).

In conclusion, I would quote the following from Thresh, which I think applies even more forcibly to India.

"Notwithstanding the immense progress which has been made in this country in recent years in practical sanitation and sanitary administration, outbreaks of preventable diseases due to pollution of water-supplies have been all too frequent. Common sense suggests that if it is desired to obtain a pure supply of water, a source should be selected, removed as far as possible from any contaminating agencies, and every reasonable precaution, which science or experience can suggest, should be taken to prevent either wilful or accidental pollution."

I certainly think that much might be done in India to further the progress made in recent years by studying more minutely the geological formation of our stations, and by paying especial attention to the direction of flow, &c, of the subsoil water. Maps should be made by engineers supplying all necessary information, and be issued to Standing Barrack Committees and District Municipal Boards, &c, and when land is selected by them for building, or entrenching purposes, &c, due consideration should be given to the direction of the flow of the subsoil water, and entrenching grounds should always be put on the down-stream side of the subsoil water-supply to a station.

If the nature of the ground or the want of space prevents this being carried out, then those wells, receiving their water-supply from areas liable to pollution, should be closed and the

water-supply drawn only from wells which are not open to any possible source of contamination

ON COUCHING OF THE LENS, AS PRACTISED BY NATIVE PRACTITIONERS IN INDIA

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HIRSCHBERG in the *Centralblatt für Praktische Augenheilkunde* (Feb 1, 1894) gave his views on "The Cataract-picking of the Hindus". He was unfortunately handicapped by his ignorance of the native of India, and of Indian ways and customs. Maynard, in the *Ophthalmic Review*, April 1903, published 63 cases which he had collected in mofussil practice. He found that 46 p c of his cases had retained good vision for an average period of 4.88 years. In his summary he supports Mr Power's conclusion that "under certain circumstances" the operation of 'depression' "would be at least allowable, if not advisable". Power's views were stated in the *B M J*, 1901, p 1260, and in the *Ophthalmic Review*, Vol XXI, p 131. Castilleja Quintillera in the *Arch de Optal Hispano-Americanos*, Oct 1904, considers that couching is justifiable under certain circumstances, and discusses the best method of operation. Major Smith in the *Transactions of the Ophthalmological Society*, 1904, p 264, gave his opinions on the subject. He was of opinion that "lens couching at the present time is an operation which should not be practised outside the ranks of charlatans". It is unfortunate that he did not give the figures on which his conclusions were based. Basso of Genoa advocates 'couching' in *La Clinica Oculista*, Janvier, 1904, and describes his improvements on Albertotti's method. His description of the post-operative complications (secondary glaucoma and rising of the lens across the pupil) would make most surgeons hesitate to copy his method. Finally, in May 1905, Maynard replied to Smith in these columns, maintaining his original position. The Editor at the same time invited further discussion.

There appear to be two distinct questions that interest us as Indian surgeons viz, (1) what results attend "couching" in the hands of the *vaithyan*? and (2) is couching ever a justifiable operation in our own hospitals?

I must own that I read Maynard's article with astonishment, the results of the operation as seen by him were so much more favourable than those one sees in the South of India. I accordingly set to work, and in the last 2 years have collected and carefully tabulated all the cases I have met with.

It is important to bear in mind that a very large percentage of these people did not come to hospital for the eye which had already been operated on, but for the other. This is due to the fact that they recognise our reluctance to interfere with an eye which the coucher has spoilt. Indeed, one only undertakes the care of such eyes with the greatest hesitation, knowing that the discredit of the whole failure will be fathered on the English hospital by the *vaithyans*, who are as unprincipled as they are ignorant.

The cases now number 125. A review of the statistics I publish will fully bear out my pessimistic estimate of the South Indian coucher's results. It may be urged that one only sees his worst cases, and his failures in an English hospital. This is to some extent true. I may say that I have been on the watch most carefully for all eyes with couched lenses, and I think I have missed very few of the good results. One must remember that the ignorance and stupidity of the lot is so great that he will not very infrequently try one eye in an English hospital and one in a *vaithyan's* hands. It is a common thing for a native patient to deny ever having visited a native doctor when he first comes to hospital. After the other eye has been successfully operated on, he will sometimes own up to the fact. I frequently see a case of typical posterior dislocation in which I am confident that the lens has been couched, but the patient will deny it to the bitter end, and I am therefore obliged to eliminate such cases from my statistics, thus bettering the *vaithyan's* apparent average. When one comes to investigate the cause of shrunken eye-balls, the same thing holds even to a greater extent. If an observer, in collecting such statistics, fails to enquire closely into the cause of every shrunken eye he meets, he will credit the *vaithyan* with an undue percentage of successes. Even when one is on one's guard, one is probably often deliberately deceived. I am sure I am. The difficulty of getting a true history of a case is proverbial in the South of India at least.

I do not say that the lamentable results here published are the best the *vaithyan* can do, but what one hears of his methods would not encourage the belief that he is likely to do any better. Here in the South, there appear to be two classes of operators, the resident men who live for long periods in one bazaar, and the travellers who move continuously from place to place. Both are Mahomedans. The former appear to get somewhat better results than the latter, and are spoken of as "men of experience". The latter seem never to stop long in one place. They collect a number of victims, operate on them and then move on before their sins can find them out. Both kinds of operators seem to be innocent of any attempt at securing asepsis or antisepsis, they use a dirty needle or a sharp wooden skewer, no anaesthetic is employed, a bandage

is kept on for 10 days, and counter-irritation is freely resorted to, to combatritis, &c. Many of the victims are ashamed to come to a European hospital after the failure of their hopes. It has been said that if the vaithyan did not get good results he would be dropped, and the practice would die out. This remark can only have come from one who knew nothing of the Indian character, or the mass ignorance of the lower classes of the people. It is hard for those who have not lived and worked amongst them to realise how easily the riot falls a dupe to impudent self-advertisement. He is a simple kindly person, whose implicit trust in confident self-assertion will bring him to grief for many another generation. The vision of these poor unfortunate people sitting down in a dusty bazaar to let an ignorant charlatan thrust a dirty needle into their blind eyes has evoked the indignation of the English surgeon from the time of our first occupation of the country. Side by side with a well equipped English hospital, which turns out its ninety odd per cent of useful vision, there sits in the neighbouring bazaar even to-day the charlatan, whose fee is fixed at anything from 3d. to 8 shillings, plus, in every case, a fowl or other animal. The latter is ostensibly for sacrificial purposes, but I understand ends uniformly in the vaithyan's curry-pot. Wendest perhaps of all the vaithyan's methods is the use of the saffron coloured rag, with which pus is wiped away from the patient's inflamed eye. On this colour the pus, &c., cannot be seen, and therefore all is well. It is the fabled ostrich again, only this time in real life, and with vital interests at stake.

The following statistics show some of the points which are elicited by my examination of 125 consecutive cases which have been met with in my hospital and private practice—

Statistics of 125 Mahomedan Operations

Mahomedan males	7
Mahomedan females	3
	10
Hindu males	67
Hindu females	48
	115
Grand Total	125

It is noteworthy that none of the patients were Europeans or Eurasians.

The scanty number of Mahomedans who submitted themselves to operation is probably to be accounted for by relative population numbers—

Ages—when they came under observation	25 yrs.	2
	26—30	3
	31—35	3
	36—40	12
	41—50	47
	51—60	36
	61—70	18
	71 and above	4
Total		125

Period which elapsed between the Mahomedan operation, and the patients coming under observation—

Less than 1 month	in 5 cases
From 1-6 months	in 20 cases
From 7-12 months	in 9 cases
1 year after	in 17 cases
2 years after	in 15 cases
3 years after	in 16 cases
4 years after	in 11 cases
5-10 years after	in 27 cases
10 years and over	in 5 cases
Total	125 cases

State of Vision when the patients came under observation

V $\frac{1}{10}$ — $\frac{1}{50}$	in 16 cases
V $\frac{1}{10}$ — $\frac{1}{50}$	in 11 "
V Marked as good, but records unfortunately mislaid	in 2 "
Total	29 or 23 2%
V Counted fingers at 2 ft or less	10 cases or 8 %
V Hand movements only	18 " or 14 4%
V Nil	68 " or 54 4%
Total	125 cases or 100 %

We may therefore classify the results as follows—

Successes	29 or 23 2%
Partial successes	10 or 8 0%
Failures	86 or 68 8%
Total	125 or 100%

It is of interest to examine the failures and partial successes separately.

The causes of failure arrange themselves as follows—

(1) Iritis and irido cyclitis	in 52 cases
(2) Glaucoma	in 17 "
(3) Imperfect dislocations of the lens	in 13 "
(4) Detachment of the retina	in 2 "
(5) Vitreous opacities (probably secondary to some affection of the uveal tract)	in 1 case
(6) Optic atrophy	in 1 "
	86 cases

The commonest cause of failure is seen to be iritis and irido-cyclitis. Moreover in 7 of the cases classed as successes or partial successes, there was evidence that iritis had followed the operation. Even this does not complete the tale, for I feel sure that some of the shrunken eye-balls met with were due to Mahomedan operators' interference, though the patients would not admit it. A knowledge of our attitude towards the "coucher" makes the native patient very reluctant to confess to having been so foolish as to have placed himself in the hands of one of these men. Under the circumstances, one can only omit such eyes from one's statistics, to the obvious and undeserved credit of the charlatan.

Seventeen cases of failure are attributed to glaucoma. Beside these, there was a pathological increase of tension in 9 other cases out of

the whole 125 Of these 2 fall under the partial successes, and 7 under the successes Confining ourselves for the present to the failures, we find that in 5 cases out of the 17, there was a clear history of glaucomatous symptoms before the couching took place In these 5 at least it would appear that the operator mistook glaucoma for cataract There are 2 other cases in which the patient came to hospital with glaucoma in the unoperated eye, giving rise to a suspicion that in them too the same error in diagnosis had been made One cannot, however, speak with absolute certainty In any case we are left with ten cases (80% of the total), in which the operation appears to have given rise to a pathological increase of tension

Imperfect dislocation accounts for 13 failures, 10 4% of the whole number In these cases the operator had failed to get the lens out of the way of the line of sight In 7 cases the lens was fixed, whilst in the remaining 6 it lay flapping across the pupil It is of interest to remember that Basso found the rising of the lens back across the field of sight one of the causes of failure in his series of cases

In the 2 cases in which failure is attributed to "Detachment of the Retina," it is very hard to say with certainty, whether this accident was the consequence of the operation, or whether it existed beforehand, and misled the operator into a false diagnosis of "cataract" In both cases it seems probable that a mistake was made, for the patients were totally blind before operation, and had not even perception of light at any time afterwards

In one case vitreous opacities hid the fundus Then cause could only be guessed

In one case there was well-marked optic atrophy, and from the history it seems more than probable that this condition was present before the operation and misled the hakim There was a corresponding condition of atrophy in the opposite untouched eye

I have looked in vain for any signs of the "slow and steadily progressive degeneration of the vitreous and of the retina," which Smith described as "the invariable sequence" of couching I do not think that such a condition exists in the eyes operated on in the South of India I am still carefully on the look-out for it

Of the 86 cases returned as failures, 30 stated that they had experienced some improvement in vision immediately after operation Of these, one retained useful visual power for 2 years, his sight then failed, and when he came under observation, he could only count fingers at 5, the T of the eye was plus 2 A second retained vision for one year, when he was observed V was hand-movements only, and the eye showed signs of old irido cyclitis A third had useful vision for 9 years after the couching, he likewise came under observation with V only hand-movements, and with signs of old irido cyclitis The remainder appear to have counted

then period of improved vision in days, and no more

Turning next to the 10 cases, which have been classed as "partial successes," one finds that in 5 of them (50% of the number) there was evidence that iritis or irido-cyclitis had complicated the after-course of the convalescence In 2 of these the tension of the eye was low, and in one it was increased In 2 other cases the tension was pathologically high, in one it was pathologically low, and in 2 I am not prepared to assign a cause for the failure

An obvious indication is to obtain any eyes removed for one cause or another, after Mahomedan operation, and to study such by means of sections It is very difficult to obtain such eyes. If any Indian mofussil surgeon has the opportunity of securing such specimens, and will place them in 10% formalin solution, and send them to me, I will be greatly obliged to him, and will fully acknowledge my indebtedness

The question of the advisability or otherwise of recognising "couching" as a "justifiable operation" next comes up It will be well, in the first instance, to review the causes of failure In the figures given herewith, these will be observed to be (1) septic inflammations of the uveal tract, (2) glaucoma, and (3) insufficient dislocation The first class of cases are probably almost wholly avoidable In dealing with the second, one is a little handicapped by the doubt which one must feel as to the method of causation of the glaucoma In some cases at least, it is probably due to irido-cyclitis, and such might be eliminated by careful asepsis Not a few, however, seem to arise independently of any such condition

The fact that Professor D Basso met with secondary glaucoma as an embarrassing post-operative sequel, is of considerable interest His explanation is that the forward displacement of the vitreous, and its "enclavement" in the pupillary area, hinder the free communication between the anterior and posterior chambers, and so give rise to an alteration in the tension of the eye The explanation is worthy of consideration It is perhaps permissible to diverge for an instant to mention that in another respect his experience coincides with my own, inasmuch as he does not appear to have seen anything of the retinal or vitreous degenerations on which Smith lays so much stress

I come now to Power's indications for "depression" as stated in the *Indian Medical Gazette*, May 1905, p 194 I take them class by class

(1) *Very feeble and infirm persons, in whom a wound might perhaps not heal at all*—My own practice is to hand such cases over to a competent physician for treatment, and to perform an extraction when the patient's health has been improved thereby. I have not met with a case of this kind in which the alternative of couching seemed to me to be justifiable

(2) *Very deeply set eyes with narrow palpebral fissures, or those in which some similar mechanical difficulty in the way of a good extraction exists*—Like many other Indian surgeons, I have had the opportunity of removing several thousand cataracts, and I cannot recall one case in which I would have felt justified in resorting to "couching" rather than face the difficulties of the operation. I believe that in this the Indian operators will be, with but very few exceptions, at one with me. It is not as if couching was in itself a perfectly simple and safe procedure.

(3) *Chronic conjunctivitis which refuses to yield to treatment, and the presence of dacryocystitis*—India may be said to be one of the homes of conjunctival inflammations, and yet I have not met a case of conjunctivitis which refused to yield to treatment. It is merely a question of time and of resource on the part of the surgeon, and I would rather take three months to cure the case and then treat it on sound lines, than couch the lens. In fact, I find that from time to time the care of a troublesome conjunctiva takes months. It is a toil I never begrudge.

As to lachrymal obstruction, the same remarks apply. As a rule I remove the sac. If there is obstruction without evidence of regurgitation, I slit up the canaliculi, destroy their lining with a cautery and allow their lumens to close by granulation, before attempting extraction. I can find no record of a case of extraction having been lost owing to lachrymal obstruction, and I have operated on a number of such.

(4) *Extreme deafness*—I have operated on a number of very deaf patients, and I think Power exaggerates the difficulty. Doubtless a tyro or a clumsy operator might be at a loss. He will be much better advised, however, if instead of resorting to couching, he places his patient under chloroform, or runs a conjunctival suture round the lower half of the corneal circumference, as close to the cornea as possible, and then operates as usual. This manoeuvre enables him to have perfect control of the eye, without risking a vitreous escape, and without the assistant, who holds the thread, being at all in the way. Since I learnt this method of controlling the eye, chloroform extractions have lost all their drawbacks, save the tiresome delay the anæsthetic entails.

(5) *Patients of unsound mind, or those mentally deficient*—The remarks in the previous paragraph again apply. After extraction I keep them drowsy with a mixture of chloral and bromide.

(6) *The fat, flabby, and phlegmatic, especially if gouty, who do not stand operation well*—Again, I think Power has exaggerated the dangers of extraction and underestimated the drawbacks of couching. The patient should, in my opinion, be got into as good a state of health as possible, and extraction then performed.

(7) *Chronic bronchitis with much coughing*—In India, at least, a time of year can always be found, in which the cough gives a minimum of trouble. One would think that the same must hold for most countries. If the cough is tubercular, it is open to doubt whether any operation would be justifiable till everything possible had been done to treat the main condition.

(8) *Complications, such as tremulous iris, fluid vitreous, &c*—Here again it is a question of the operator's skill. A deft surgeon will easily combat difficulties, which with another less able might lead to disaster. My own practice is to use a vectis at once if the vitreous is fluid or if the lens tends to fall back. Major Smith has described elsewhere his method of dealing with the same difficulties. To resort to couching under these conditions would be, to my mind, a confession of incompetence, which I believe few Indian surgeons would care to make.

9 *When the other eye has been subjected to extraction and has been lost*—I meet with not a few such cases, and I can confidently say that no such idea as resorting to couching would ever cross my mind. In dealing with such a case, one redoubles one's precautions, and endeavours to find out the cause of the previous failure if possible. Time in treating complications becomes a matter of no consideration, the patient's health is carefully attended to, the conjunctiva is cleaned at the time of operation with, if possible, more than usual care, and any precaution which experience can suggest is taken. Then an extraction is performed.

10 *The hæmorrhagic diathesis*—I am glad to say that my experience in this direction is very small, but I cannot help entertaining a doubt whether an operation which tears the lens from its bed and forces it back into the vitreous, would be likely to lead to a successful result in a 'bleeder'.

To sum up—Whilst I cannot go as far as Smith, in saying that couching of the lens is an operation "which should not be practised outside the ranks of charlatans," I feel almost as strongly as he does on the subject of it being discussed as 'a justifiable operation' under any circumstances for the Indian surgeon. With our great opportunities of acquiring manual dexterity in extractions, it would, to my mind, be a disgrace to us to advocate under any circumstances an operation of this nature. Whether those who possess in a lesser degree the confidence of their hands may resort to such measures is another question. It is one they alone can decide. At the same time, I desire to combat the view that "couching" is a safe and harmless procedure. Experience not only of the results of Indian vaithyans, but also of those of a European surgeon show it is not. Grave dangers attend it, and we may not undertake it light-heartedly. I consider that to advocate couching under any circumstance

would be to set the clock of progress back many decades, and to confess a lamentable want of confidence in the dictates of sound surgery

If I rightly apprehend Maynard's position, his defence of this suggestion has sprung from loyalty to his old teacher, and his interest in it has been academic, and not practical. I should be surprised to learn that he really couches lenses under any circumstances. Holding the important position he does, it would be of interest if he would restate his views on the subject, telling us, not what "might be," but what "actually is," in his practice

EXTRACTION OF CATARACT IN THE CAPSULE

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In this paper I shall deal first with such of Major Elliot's facts as I have not dealt with fully before. In your May issue he quotes my paper in your issue of September 1905 "The vitreous seems to repair as well as any other tissue, and why should it not?" He goes on to construe this as implying that I hold that when partially lost it is generated *de novo*. Any one who reads my paper or the passage quoted can see that it does not imply anything of the kind. He wants the evidence on which I base the expression quoted. The evidence is that after recovery of an eye from which there has been a small escape of vitreous (1) there are no appearances of scars or bands in the vitreous, (2) normal tension is maintained, and (3) the vision of the eye does not suffer. *Vide* my reply to Major Herbert in a recent issue on the "diaphragm" of the eye and dislocation of the retina. Major Elliot, in support of his interpretation of the above-quoted passage, argues against those few heterodox persons who hold that in such cases the vitreous is secreted *de novo* and quotes on the other side Pacons: "The vitreous is an inert jelly-like structure which subserves optical functions. In pathological conditions, so far as is known, it is purely passive. It is, therefore, advisable to avoid such expressions, as 'shrinking of the vitreous,' &c which imply an activity which it does not possess. It is incorrect to use such expressions as hyalitis, &c." Major Elliot says "It is difficult to believe that such a structure would easily be replaced if lost." As I before said, my language does not imply that I hold that vitreous is generated *de novo* in these cases, such is not necessary to my position, but I am very careful to avoid asserting that what we know little about is impossible and to leave such things open. Let us take the above quotation from Pacons which Major Elliot puts down as such a thing as we should believe as a dogma of our creed. It is a positive conclusion drawn from the absence of knowledge. I do not agree with

Pacons and Major Elliot that the vitreous is an "inert jelly-like structure" in pathological conditions so far as is known, is purely passive. The vitreous is an organized and highly specialized tissue which has its metabolism, gets its nutrition and gets rid of its waste as well as other tissue in the body. It would be the grand exception to all the other tissues in the body if it were "inert" and "passive" in health and in disease, if it had no more life than so much paraffin. How does the vitreous increase in size from the disappearance of the hyaloid artery in early life to the period at which the eye is at its adult size, a period during which its physiological functions are performed as in later life? During this period, that it grows must be regarded as an undoubted fact. The vitreous of a three months old baby is not as large as that of an adult. Where does its size come from? How does it grow? So far we do not know, but we know the fact that it does grow. In after-life does the mechanism through which it grows cease to exist? We do not know. Why should the capsules of the clove of vitreous—I assume that such is its structure—not become refilled after the manner in which an injured nerve fibre becomes regenerated? Hence I say now that we are justified in casting such dogma as that of Pacons aside, and leaving this an open question. My opinion is that the day will come when anatomists and physiologists will regard the vitreous as one of the most highly organized tissues in the body. Then the dogma of Pacons which Major Elliot lays down as an argument, that the vitreous takes no part in pathological conditions, &c. Why lay down dogma of this sort in face of the fact that the vitreous becomes fluid and ultimately shrinks in glaucoma, iridocyclitis and other conditions? Why tell us that it is "inert" and "passive" and draw deductions accordingly? It is a pity that the writers of books on general and special surgery were in so many instances not men of practical experience. If they were, we would not be entertained to such rubbish.

Major Elliot goes on to say that men in Europe follow up their cases. This is a stock phrase dished up to us not only in ophthalmic but in general surgery on all such occasions. A great man in Europe may have done 100 cataracts—when he is 40 years of age and written a book before he commenced. Does he really follow up his cases with so much care as we hear of? I much doubt it. It is way of persuading people that you are very careful. A patient goes to a consultant with coryza, for example, who takes down in a huge book a long history of the case even to the colour of his hair. The patient leaves saying "a very careful man, that man follows up his cases." Major Elliot wishes me to go into an absolute detail on every case I do of observation extending up to five years ophthalmoscopic and other. To do this would

be work for half the Indian Medical Service if they had no other work. Nothing, only such, will satisfy Major Elliot. I fear, he will have to remain dissatisfied. I have something else to do than to make out pedagogic statistics which at best would be considered to have a human element in them. If I cannot "follow up" my cases, I can assure your readers that my failures follow me up long after I care to see them and they are the cases of interest in this respect. It is now, I think, well known not only in India, but far beyond it that I welcome any member of the profession, and that I show him anything I have got to show—before the operation, the operation, the after treatment and a large number of cases formerly done, come back to get their second eye done, both successes and failures, and I can say now, that my failures do not go elsewhere. The records are here extending back ten years in which they can look up any case they like. In any of the three months, March, October, or November, they can see about 1,000 cataracts extracted.

I have now many visitors who come for a few days to see for themselves and to form their own conclusions, and I have no doubt that they come to more definite conclusions in three days of those months on this subject than they would come to from the conning over of all possible details in statistics of 20,000 cataracts, even if they could exclude the idea of a human element in statistics. Statistics are at best a very poor substitute for what can be actually seen.

Major Elliot says, "but I have been struck with the number of blind eyes I see from old operations in which the characteristic upward displacement of the pupil indicates that the hyaloid membrane was ruptured at the time of operation. These observations have confirmed me in the profound respect for the dread in which European surgeons hold a vitreous escape." Any evidence seems sufficient to persuade Major Elliot when he has a case to support. This conclusion does not profess to be based on following up cases. It is simply an assertion. Is the upward displacement of the pupil which he lays down as infallible proof of escape of vitreous having occurred any evidence of that fact at all? In my observation it is absolutely no evidence on the point. Escape of vitreous is not in itself associated with upward displacement of the pupil. You may have it with escape. You may have it without escape. But in no case do you have it without adhesion of the iris to the scar of the corneal incision which is its sole cause. What would be the mechanical principle which led to upward displacement as a result of escape of vitreous?

Major Elliot does not agree with me on *iritis* following cataract extraction. He does not call a case in which there is "a plastic exudation from the lower surface of the iris attaching it to the capsule a case of *iritis*." It

is on this principle, I presume, his statistics of *iritis* are based. As regards *iritis* I mean exactly what I have written in clear and unequivocal language, which implies that Major Elliot and I are as far from agreeing on the causation of *iritis* and "irritation of the iris after cataract extraction," as it is possible to be. The fact that these conditions, practically speaking, do not occur after extraction in the capsule is an overwhelming argument in support of my contention.

I do not agree with Major Elliot that tampering with the lens capsule after its contents are out is less liable to cause escape of vitreous than expressing the lens in its capsule. It is much more liable in my experience to be associated with escape and copious escape of vitreous.

Major Elliot does not consider after-cataract an evil of any importance nor an invariable consequence of leaving capsule behind. In this connection *vide* the *Edinburgh Medical Journal*, March 1906, page 284, under the names of George A. Berry and W. G. Sym. "There is no complication which more frequently and more seriously tends to nullify good results than the changes which the capsule is apt to undergo, and the inflammatory processes which are caused by irritation of it, to say nothing of the annoyance, and even of the collapse of the patient's hopes following upon an operation for the removal or division of that structure." With this I agree, and I think, I am right in saying that the men whom Major Elliot calls "The Masters" are of one mind on this point. The degree of the collapse of the patient's hopes when he finds that the first operation has been a failure without a second, a third, or even a fourth operation—needling has often to be done two or three times before a satisfactory result is obtained, especially in the hands of men of little experience—is a thing so depressing on people of that time of life that it requires only to be observed to be appreciated. It requires to be seriously included in our original calculations as to whether we will remove the cataract by one operation or by many. Major Elliot quotes me "By extraction in the capsule no instrument or douche need be inserted to remove lens matter. The cause of the striped keratitis we hear of and other complications." He then goes on to say that keratitis follows in from twelve to fourteen per cent of his cases since he adopted the douche and that this is better than he had before he adopted the douche and that he thinks this refutes my statement. It confirms my statement. These things, practically speaking, do not occur after extraction in the capsule. Meddling in the interior of the eye is a procedure for which a penalty has generally to be paid.

Major Elliot does not agree with me that lens capsule left is invariably an after-cataract varying only in degree of density. He says it is often invisible with an electric light. It would also be invisible with an X-ray light.

Let any one examine these cases not with an X-ray light or an electric light, but with a paraffin candle, and he will see what difficulty there is in making out the details of the fundus when compared with a normal eye. What makes the difference is this: after cataract I think I am right in saying that the general practice of cataract operators in Europe is to warn the patient before they extract his cataract that he will have to return a short time afterwards to have a secondary operation—needling of the lens capsule or after-cataract. Major Elliot regards iritis, keratitis and after-cataract as things of not much importance. How does the intelligent patient regard these matters? Does he regard his prolonged stay in hospital with iritis or keratitis, and the amount of mercury he has to swallow as a small matter? Does he regard an after-cataract as a small matter? Is the extensive use of atropine in the old operation in itself a small matter? I say it is not. It is one of the most dangerous drugs in the pharmacopoea, though so necessary in the old operation from the frequency of inflammatory complications of the iris. In extraction in the capsule it is not necessary and is a drug I have almost entirely ceased to use in that operation. The amount of congestion it produces is objectionable and a not inconsiderable danger of post-operative glaucoma, one of the most formidable of complications, is associated with its use.

Major Elliot saw a man try extraction in the capsule, who failed, tried it I presume on a written description—and since he was a man whose skill he had never seen beaten by "The Masters in Europe" that test was conclusive. I can understand the situation of a man attempting extraction in the capsule on a mere verbal description—the most highly technical operation in the whole range of surgery. He may hit it off or he may not. If that man had seen an experienced operator do 50 or 60 and been presided over by him while doing a few the whole difficulties would have vanished. Who are "The Masters in Europe," that they should be accorded such importance in this matter? They are men of very limited experience in cataract. Why should we subordinate our judgment to that of those men who are incomparably our inferiors in practical experience in this intensely practical matter? A question which is to be decided by practice not by theory.

Major Elliot's paper would not require a reply from me at such length, were it not that he poses as the guardian of the junior surgeons in India, men as capable of judging as he is, and advises them to beware of the "Cock at the bottom of yonder well."

He considers that I am not right in thinking that "The Masters in Europe" are opposed to me in this matter. At the British Medical Association annual meeting of 1903, when I read a paper on this subject the president of the section called

for speakers with the following qualification, "I believe, there is a deep-rooted opposition to this procedure in the meeting." Am I not right in regarding that as advising the meeting to put this subject on the Index Prohibitorum? Were the Americans and Australians present not right in putting the same interpretation on it?

In this controversy we should not forget the storm which Keegan and Freyer raised on litholapaxy among surgeons in Europe, and that had they not only been brilliant operators but able men litholapaxy might have died in the struggle. We should not forget the storm which Freyer's grand work on the prostate raised among surgeons in Europe. Plenty of theory and fundamental objections in both cases—practice has decided both questions. Prestige often ushers its possessors into an arena which their better judgment would dictate that they should avoid.

CATARACT EXPRESSION (SMITH'S OPERATION)

RESULTS IN 175 OPERATIONS

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EVERY one must agree that Major Smith's name should be associated with removal of a cataractous lens in its capsule entire.

Though all Surgeons who have done many cataract operations have I take it removed over-ripe lenses in much the same way, Major Smith must be credited with having been the first to advocate the adoption of this as a routine method and by the introduction of important improvements in technique he has made it an operation *sur generis* not to be confounded with that known as Pagenstecher's. This confusion has been repeated in some criticisms of Smith's operation which have recently appeared in home journals.

Pagenstecher's operation is extraction of the lens in its capsule by means of a scoop or spoon passed in behind the lens and is, as far as I can ascertain, the operation which has been performed for years in the Eye and Mayo Hospitals in Calcutta by my predecessor, Surgeon-Major Macnamara, now of the Royal Westminster Ophthalmic Hospital. Smith's operation is expression of the lens in its capsule without the use of any scoop. Pagenstecher's causes only slight increase of intra-ocular pressure, but entails almost certain prolapse of vitreous. Smith's causes considerable increase of pressure until the lens begins to come out and in a large proportion of cases results in prolapse of vitreous also. The operations are as different therefore as they can be and Smith's is original in technique though founded on the old observation that prolapse of vitreous is by no means always followed by a poor result in cataract extraction.

The term "expression" of cataract describes this operation better than "extraction" and should in my opinion be used for it.

Many natural objections to the operation combined with indifferent results in the few performed prevented me from giving the method a thorough trial. Having seen Major Sunder perform it, however, I was led to "take one's courage in both hands" as he put it and the 175 operations now analysed are the result. The objection to the conclusions drawn may be raised that not having seen Major Smith perform his operation, the operation done may not really have been his. In answer to this, I would say first that the directions published by him* were implicitly followed (except in the matter of incision in which after a short trial his incision was given up, and in the matter of coaxing out the lens, both of which alterations in his technique will be referred to at greater length presently), second, that I have seen others perform the operation, and finally that I have had the benefit of hearing from an oculist who had seen me doing it, who had done it himself in my clinic and had subsequently seen Smith do it, and he pointed out only one difference in technique which was altered without influencing the results.

As regards slowness and care in operating the average time taken was five to ten minutes, which is longer than usual with me. Major Smith does 20 to 30 in the hour and along with the operation writes up the notes. He says "as regards the records, the bed head tickets as far as concerns the operation and the case are written up in every detail by myself before the patient has been removed from the table." Dictating the notes myself I find it difficult to get through more than twelve in an hour, not working against time of course. These remarks are made with the object of showing that undue hurry in expression was not the cause of the vitreous prolapses and capsule ruptures met with. The results as regards the operation and its complications will first be dealt with and then some conclusions will be drawn.

THE OPERATION

Incision. In Smith's paper published in the *Indian Medical Gazette* for September, 1905, he says "I . . . and cut out in the cornea with a sweep half way between a normal pupil and the scleral-corneal junction," i.e., make the incision well forward in the cornea and in 1900 he made the incision in the same way. This was done in some of my earlier cases, but it was soon given up and the usual corneal incision parallel to the plane of the iris with a conjunctival flap was reverted to. Major Smith has also given it up I understand and in his last letter to the *I. M. G.* (April, 1906) says—"this operation can

be done just as well with one incision as another." I cannot agree with him in this as the incision originally recommended but now given up is a bad one as regards later results though it facilitates expression at the time. It gapes for days and often epithelium grows into it, interfering with healing so that a weak scar is left taking some time before the epithelium is extruded and the scar becomes strong. The amount of astigmatism left is also much greater with such an incision. Iridectomy was performed in all the cases in the series, and atropine was instilled before operation. These aids to expression appear very necessary. *Expression*—was slowly brought about by pressure with the convexity of the strabismus hook near the lower margin of the lens and counter-pressure with the back of a spoon applied just above the edge of the wound as directed by Smith in the paper above referred to. In April, 1906, he speaks of having stopped pressing on the ciliary region or post-ciliary region because it favours retinal detachment. But if counter pressure is not to be applied there, where is it to be applied? Without it expression or extraction is much more difficult and it is hard to understand how counter-pressure there is to be held responsible for detachment. That is far more likely to be due to loss of vitreous support on which the retina has to rely for remaining in place. The retina is not, as Smith says, "organically attached" to the coats of the eye on which it rests, as may be ascertained from simple observation or from any text-book.

An interesting point bearing upon the anatomy of the lens was observed and may be mentioned here.

After the lens in its capsule has begun to bulge through the wound it not infrequently happens that a fine transparent membrane appears to give way in front of it, this fine membrane is adherent to the posterior surface of the iris, and its giving way facilitates the passage of the lens. In such cases the capsule rarely bursts and the vitreous rarely prolapses. Perhaps it is a superficial layer of the thickened capsule of an overripe lens, though it gives the impression of being a definite membrane, and it gives way over the advancing lens just like the membranes may be seen to give way over an advancing foetal head. It cannot be the hyaloid which lies behind the lens and remains unruptured in such cases, and it behaves like an outer capsule. The existence of a definite hyaloid membrane behind the lens which has been disputed (see Parsons' *Pathology of the Eye*, Vol II, p. 428) is apparently decided in the affirmative by the course of events in this operation.

The above reference to foetal membranes reminds one that there are several features of this operation recalling labour and making the simile not so absurd as it seems at first sight. The incision, like the cervix, must be large enough and the expression slow. The upper edge of the

* *Indian Medical Gazette* Vol 35, 1900, p. 241, & Vol 40, 1905, p. 327.

lens must tilt forwards just as the head must present properly. With much resistance a *caput succedaneum* forms, and if the lens is large, or the incision small relatively, the lens becomes moulded and a distinct sulcus forms on it at the line of pressure. If labour is rapid the membranes rupture early, and in expression rupture of the capsule is likely to follow haste, though it may occur without. Finally in its passage out the placenta wipes the parts clean and the lens also wipes the wounds in the iris and cornea clean,—one of the advantages of this operation.

Two aids to expression may be mentioned which have been found useful. When the lens is half out it will sometimes be found that neither pressure nor counter-pressure, nor tilting the lens out by getting the edge of it in the concavity of the strabismus hook as recommended by Smith, avails to express it, and the operation seems to come to a standstill. In such cases, while keeping up pressure with the strabismus hook, the lens may be gently coaxed out by means of a spoon applied along its edge with safety, provided the spoon be rounded and not sharp and great gentleness be used, so as not to rupture the capsule.

The other aid is to slowly slide the counterpressing spoon along the sclera along the outer edge of the wound. By doing this gently the transparent membrane above described may be seen to gradually tear through, the pillars of the iris coloboma to separate and the lens will then come out quite easily. Neither of these manoeuvres were found to increase the complications.

Torlet—If prolapse of vitreous did not occur, the pillars of the iris coloboma were stroked into position. They were found more often in the wound than in ordinary extractions as would be expected from a larger mass having to be pressed out through the wound. The lids were then closed and wiped with pledgets of wool and pads of gauze and wool applied. If the capsule ruptured during expression an attempt was made to remove it with dissecting forceps, the attempt seldom being successful completely. Failing removal of the capsule some cortex was usually stroked out, but such eyes were regarded with apprehension, the eye having been subjected to pressure without the desired result having been obtained, and the anterior chamber remaining full of cortex and displaced capsule. The results in these cases will be given later.

COMPLICATIONS

Rupture of the capsule—This occurred in 30 cases or in 17.14 per cent. There were 10, 7, 9, 4 in successive fifties (only 25 in the last group). In 5, 1, 3, and 1 (total 10 out of the 30) there was prolapse of the vitreous as well. Three of the prolapses were slight, four were moderate, and three large. Smith gives 8 per cent of ruptures which is low compared with the above.

When the capsule ruptures some capsule and cortex usually remain behind. The cortex may be absorbed, and needling will assist this if necessary. Capsule is not absorbed, however, and its presence, loosened from its surroundings, is a dangerous complication. How dangerous all surgeons with any experience know, and those who do not, may learn from Paison's work already quoted and from Treacher Collins' papers on the subject. When entangled in the wound as it seems more likely to become on being ruptured in this way the danger is great. It may be mentioned that during the series the attempt at expression was abandoned in eight cases as the pressure required was considered unjustifiable. The attempt did not appear to have injured the eye in any way as all the eyes obtained good vision. In one only there was keratitis, and healing was delayed by iris becoming fixed in the wound.

Rupture of the capsule injuriously affected the resulting vision. Of the 29 cases, 22 gave good results, including six in which needling was performed. Five gave indifferent results, and two ended in total loss of vision—one from suppuration and one from opacity of the cornea and low tension. In the 145 cases where the capsule did not rupture there were 138 good, 4 indifferent and 3 bad results, *i.e.*, more than half the indifferent and nearly half the bad results of the whole series were in cases in which the capsule had ruptured.

Prolapse of the vitreous—In the 175 expressions the vitreous prolapsed 67 times, *i.e.*, in 38.28 per cent. In successive groups there were 21 prolapses in 50 expressions, 21 in 50, 17 in 50, and 8 in 25. Eleven of the prolapses were large, 34 were moderate, and 22 were small in amount. Thirty of them occurred before the lens, five with it and thirty-two after it. During the time these operations were being performed, five cases were met with in which the patient squeezed out lens and vitreous together without assistance the moment the incision was completed. These cases have not been included in the figures. There were also six cases among those now analysed in which vitreous bulged into the wound, but did not prolapse or require cutting off. These have not been included among the prolapses. The usual percentage of vitreous prolapses in cataract extractions may be taken to be about five per cent. Galezowski recently gave his prolapses at 4 to 5 p. c. In a paper published by me in the *Indian Medical Gazette*, Vol XXXVIII (1903), on the results in a series of one thousand consecutive cataract extractions there were 68 expressions in the capsule, and in these 68 there were 33 prolapses of vitreous. All were overripe lenses in tough capsules which bulged into the wound and offered themselves as it were for expression. Excluding these there were, in the remaining 932 extractions, 59 prolapses of vitreous or 6.3 per cent. In the last thousand extractions

in my note-books the percentage has been 43. Taking 50 per cent as the average therefore that may be expected, this means that in this series of 175 expressions there were 67 prolapses instead of nine. Smith gives his percentage of prolapses in 2,616 expressions as 68. This means 177 prolapses, and in only nine of these he says did more than a bead of vitreous escape. Thus, too, in a series which included 75 cataracts that had already been couched by *sawuls*, although it is nearly always found in such eyes that the vitreous is fluid and prolapse is inevitable as the hyaloid has already been ruptured. As regards results, the vision in 108 cases in which there was no prolapse was good in 100, indifferent in six, and bad in two, compared with 62 good results, three indifferent and three bad results in the 67 cases where vitreous prolapsed. Of the 62 prolapse cases resulting in good vision, 33 or more than half saw $\frac{6}{18}$ or more with glasses. Of the 100 cases without prolapse obtaining good vision, 69 saw $\frac{6}{18}$ or more with glasses. These figures do not reveal any very striking differences between the cases with and those without prolapse. They do not represent the final outcome of the operation, however, as it is reasonable to assume further deterioration of sight in some of them after prolapse of vitreous. It is surprising, no doubt, what good vision is obtained after even large prolapses of vitreous, and how soon tension is restored. But in many cases such tension comes back only slowly, in others the vitreous remains exposed in the wound for some days before it becomes soundly healed over, and in all cases access for infection to the interior of the vitreous chamber is provided at the time of operation. The question of frequency of detachment of the retina can hardly be decided in this country where it is so difficult to follow up cases. But it would require a considerable series of such operations carefully, and repeatedly examined and found free from subsequent detachment or degeneration to convince one that vitreous prolapse is a negligible complication in cataract extraction. Still stronger must the proof be in cataract expression where the force used is necessarily greater. Such proof we have not yet, beyond the facts that Major Smith still does the operation and the Punjabi still comes to have it done. Were the Punjabi patients mathematicians and scholars the proof might be considered enough.

Iritis was found only three times, in one of which cases the capsule had ruptured. *Iritis* was rare therefore, as claimed by Smith.

Iris prolapse occurred five times, and three times it was found healed in the wound. This is above the average, but is to be expected in operating under such conditions as explained above under the heading "expression."

Keratitis—There was haziness of the cornea in 19 cases, varying in degree and coming on a few hours after operation. It cleared up in all except two, in which the cornea remained opaque

(*vide infra*). The haziness appeared to be due in some cases to the pressure of the stabismus hook and in others to bruising from the lens in its passage out. In one case there was an abrasion of the cornea which may have been due to cocaine. (Alypin was the anæsthetic used in more than half the cases.)

Delayed union of the wound—Delay in union was met with in seven cases and this in spite of six of them having conjunctival flaps, with which addition in ordinary extractions delayed union is almost unknown. In three of the seven epithelial in-growth occurred, and in one of these infection followed and the result was a failure.

RESULTS

Vision—There were 162 good, 9 indifferent and 5 bad results in the 175 cases recorded. Of the 162 good results 115 obtained, with glasses, vision varying from $\frac{6}{24}$ to $\frac{6}{6}$, 55 of them being in the $\frac{6}{12}$ class. Of the 115 referred to above, 41 were cases that had had prolapse of vitreous, which makes 61.2 per cent on the 67 such prolapses met with. Seventy-four of the 115 had had no prolapse or 68.5 per cent. In other words, 68.5 per cent of cases without prolapse obtained such good sight compared with 61.2 per cent of the cases having prolapse.

Of the indifferent results three were not in any way dependent on the operation, two being found subsequently to have optic atrophy and one retinitis pigmentosa. Of the remaining six indifferent results, in four it was mainly due to rupture of the capsule, and needling might have improved matters. In one of the four vitreous prolapsed also. In the remaining two cases, although no complication occurred at the operation the eye remained red, painful and slightly chemosed for some time after, in one case for a month and in the other for a shorter time and sight was never good, though no other reason for this was found. In one of these cases the pupil became drawn up so that the eye looked as if there had been a prolapse of vitreous though there had not been. This phenomenon was met with in four other cases also where no prolapse of vitreous had happened and where there was no means to account for it.

The notes on the five cases ending badly were as follows—(1) vitreous prolapsed before lens, vectis used, capsule ruptured, lymph appeared in a c three days later and eye was lost, (2) vitreous prolapse, next day striated keratitis and iris in the wound, lymph appeared and the eye was lost from suppuration, (3) a case of old trachoma vitreous preceded the lens, vectis used, striated keratitis next day and eye soft. Twenty-six days after eye still very soft and tension—3, cornea diffusely hazy, pupil dilated, V = pl only. The other eye, extracted eleven days earlier with iridectomy and irrigation, did well and obtained good sight, (4) no complications at operation, wound gaped for a month

in spite of a small conjunctival flap and lymph appeared in it, not in the anterior chamber, tension remained low and cornea hazy, V=hand movements only, (5) capsule ruptured, tension remained low and cornea became opaque, V=p1 only. No sign of inflammation about the eye. None of these bad results should have occurred, and if the two which became septic be excluded, though it is doubtful if they should be as in one the capsule ruptured and in the other vitreous prolapsed—both complications favouring infection—the remaining three failures can be directly attributed to the method of operation. Of the indifferent results six may fairly be so attributed.

In 33 of the cases it was possible to compare the sight in the expressed eye with that of the other operated upon in some other way. In 15 of these the vision was better in the "extracted" eye, in seven it was better in the "expressed" eye, in ten it was equal in the two eyes, while in one case already referred to, the expressed eye failed from haziness of the cornea and low tension, the extracted eye obtaining good sight. In one of the 15 eyes referred to above the better eye was one that had been "couched" $1\frac{1}{2}$ year previously, the sight in it was $\frac{1}{12}$ compared with $\frac{5}{18}$ in the expressed eye. In all the rest ordinary extraction had been done (with iridectomy in all but three). The difference in sight usually amounted to the patient reading one line lower with the better eye. In one patient in whom both eyes were expressed the sight was better in the eye in which no complication was met with than in the other in which vitreous prolapsed.

2 *Cosmetic appearance*—Though not inclined to lay stress upon this there can be no doubt about the unpleasant appearance of many of the eyes after expression, especially where there has been vitreous prolapse. In such the pupil often lies behind the upper half or third of the cornea and looks uncommonly ugly, particularly in blue or light-coloured irides. In all cases the pupil tends to be larger than after extraction.

3 *Astigmatism*—With a forward incision as at first advocated by Major Smith, and done by him in about 9,000 cases, astigmatism is great. In three such cases it amounted to 7, 15, 15 dioptres, tested with the ophthalmometer, and this incision was given up at once (as it since has been I understand by Major Smith himself) for this and other objections already given.

If the incision is made the same as in ordinary extraction, *ie.*, with a conjunctival flap, the astigmatism is about the same after extraction or expression. Without a conjunctival flap it is a little greater.

CONCLUSIONS

The *advantages* of the operation are (1) only one instrument, besides the knife—the iris forceps—is introduced into the interior of the eyeball and so there is less chance of infection,

especially as the piece of iris touched by the forceps is removed, (2) complete removal of capsule and cortex and so better vision, with removal of one of the main causes of indifferent sight after extraction, and of one of the minor causes of iritis. Impaction of capsule in the wound with all its dangers is avoided also.

The *disadvantages* of the operation are (1) frequent loss of vitreous with its dangers of detached retina, hæmorrhage, increased chance of infection, etc., (2) prolonged lowering of tension and haziness of the cornea with poor vision. This may occur without prolapse of vitreous, (3) delayed union which may occur even with a conjunctival flap and with a peripheral incision, due to the pressure applied. Prolonged redness, lachrymation and chemosis with drawing up of the pupil are apt to be found in such cases, (4) frequent rupture of the capsule with its bad effect on vision.

In face of these grave drawbacks it is impossible to recommend the performance of the operation, and personally I have returned to the practice of removing lenses in their capsules only when they are overripe and have thick capsules, to those cases in fact in which I have generally removed the lens in its capsule, years before expression was heard of, making use of the improvements in technique introduced by Smith.

It is futile as well as arrogant to compare his operation to litholapaxy as Major Smith has done. The comparison suggests that those who do not practise it are neglecting their duty to their patients, in fact are wilfully performing an inferior operation upon them. The deliberate and, I believe, unprejudiced pronouncement of the three presidency ophthalmic surgeons of India* one after another against the operation together with the results published by its advocates should go far to make men pause before adopting an operation for which such extravagant claims have been made and in which such manifest dangers are incurred.

I have to thank Assistant-Surgeon Surendra Nath Ghosh, I.M.S., House Surgeon of the Medical College Eye Infirmary, for much assistance in the care of the cases which form the subject of this paper.

"EXTRACTION OF CATARACT IN THE CAPSULE *versus* THE ORDINARY OR CAPSULE-LACERATION METHOD"

BY H. GIDNEY, F.R.C.S. (EDIN.), D.P.H. (CAMB.),

CAPTAIN, I.M.S.,

Nasrabad.

In this most interesting controversy that is now proceeding between some of the leading ophthalmic Surgeons in India, it appears to me that the whole question, as to which is the

* See papers by Major Herbert, I.M.S., Bombay, and Major Elliot, I.M.S., Madras, in *I.M.G.*, February and May 1906.

better operation of the two, depends on four most important points [In this article I shall use the word "Capsular" when referring to extraction in the capsule and "Non-capsular" for the ordinary or Capsule-laceration method]

1 The susceptibility of the eye to suppuration when the capsular operation has been performed, whether vitreous has escaped or not

2 The utility of the so-called supporting diaphragm of the eye which is maintained in the non-capsular operation as against its loss in the capsular

3 The greater frequency of an escape of vitreous in the capsular and its results

4 Detachment of the retina, as happening in the capsular and its results

I shall not touch on the frequency of iritis, and the leaving behind of soft lens debris in the lens capsule, as these points have been sufficiently dealt with in previous articles on this subject. Major Smith, the chief exponent of the capsular operation, and whose experience in this field is unrivalled in the world, tells us that he has no fears for vitreous escapes unless the quantity be excessive claiming that the vitreous seems to repair as well as any other tissue, and asks why should it not. He ridicules the idea of any support or utility being afforded by maintaining, intact, the diaphragm of the eye. He states most positively, that in his enormous experience, detachment of the retina is of rare occurrence, and does not worry him in the least. On the other hand, Major Herbert, a most skilful advocate of non-capsular operation, has a dread of vitreous escapes. He maintains that the percentage of vitreous escapes is higher in the capsular method, more especially so in the hands of the inexperienced. That the capsular operation "violates the essential conservatism of correct surgery in that it introduces a risk unnecessarily." That there is a fear of either an immediate, or a remote, detachment of the retina happening and that the integrity of the eye is endangered by the loss of its supporting diaphragm. Major Elliott challenges Major Smith's remarks on the reparative powers of the vitreous and maintains that he, in common with the majority of ophthalmologists, is unconvinced that the vitreous possesses any regenerative power. (I take Major Elliott's remarks to mean the regenerative power of the vitreous *de novo*), he states that his dread of vitreous escapes is shared by most of the masters of Europe, that there is a fear of retinal detachment taking place and consequent loss of vision in the capsular method of operating. He also attributes great weight and advantage to maintaining intact the diaphragm of the eye, which he says acts as a guard against infection and a safeguard to the anatomical equilibrium of the organ. These widely divergent views and methods of operating by three such well-known eye surgeons, each claiming his own advantages and superiority, is entirely dependent on

the treatment afforded to the lens-capsule. In the capsular method the lens is extracted in its entire capsule, while in the non-capsular operation, the anterior capsule is lacerated, the lens extracted, and the capsule left behind, and should it become opaque or hinder vision it is needled or cut at a subsequent date. The details of the non-capsular operation are too well known to require any further remarks, but in the capsular operation what happens when the lens is extracted? The suspensory ligament is "intentionally" ruptured either at some distance from its attachment to the lens-capsule, when the capsular ends of its fibres come out with the lens in its capsule or the lens in its capsule forcibly detaches itself from the capsular fibres of the suspensory ligament and comes out. The hyaloid membrane is not interfered with, as a rule, no excessive pressure is required to extract the lens. It is guardedly lifted out from its position, and its place is most probably for the time being taken up by a protusion forwards of the vitreous under the unruptured hyaloid membrane. This replacement is not a sudden one, as happens when the lens is shot out of an eye, and the hyaloid ruptures, causing an escape of vitreous, but a gradual one, which is more or less under the control of the operator.

To take these 4 main points separately —

(1) Is an eye from which vitreous has escaped more prone to end in suppuration than one from which there has been no such escape? I apply this chiefly to the capsular operation which admits a higher percentage of vitreous escapes and with a natural supposition that there must of necessity be a higher percentage of suppurations. I exclude such causes as the entanglement in the corneal wound of a bead of vitreous which can be abscessed, or a tag of the capsule as happens in the non-capsular operation, or a tag of the hyaloid in the capsular method. These are eventualities which happen, no matter what operation you do.

I confine myself to the broad question *viz*, when an escape of vitreous takes place. I maintain that such an eye is not more prone to septic infection, for suppuration cannot possibly take place if there are no septic organisms present in the eye, and given the presence of septic organisms an infection will take place, mild or virulent, no matter what operation you perform capsular or non-capsular. One cannot absolutely exclude the possibility of septic infection happening unless he has ascertained beforehand by a bacteriological examination of the secretions of the eye, that there are no septic organisms present. I might here remark the great importance and advisability of a systemic bacteriological examination of all eyes before operating on them*. I am aware that this suggestion is not very practicable in India at

* (I hope soon to publish my results on the bacteriological examination of 100 eyes, natives)

least in the smaller stations on account of the number of cases one has to operate on, and the lack of materials, but it should be done in the big eye hospitals. It will only delay the operation a few days and the time is fast approaching when the bacteriologist will be of as much importance to the surgeon as he is now to the physician, it must be remembered that the conjunctiva with its numerous crypts and furlows is an ideal "locus" for bacteria to thrive in, especially among natives, and however thoroughly you may clean the eye with antiseptics, you are not certain that it is bacteria-free. It is from these buried bacteria hidden away in the conjunctival fornices that septic infection always happens (granted all other sources of infection such as instruments, saline solution, &c, are eliminated). Major Elliott says that the diaphragm of the eye (the constitution of which I shall revert to later) which is maintained intact in the non-capsular operation prevents the inroad of infection. I admit that, to a "very" limited extent, it does possess this protective function, but take the case of an infected eye in which its diaphragm is intact. The posterior capsule gets inflamed and opaque and vision is lost. Now assume that the infection is arrested and apparently subsided, you needle this opaque posterior capsule, but do you restore vision? Very rarely if at all, because the vitreous has by now become infected, may be, by continuity with the posterior capsule, but chiefly by way of the numerous spaces that exist between the widely spread out and divergent fibres of the suspensory ligament. For these are patent ones full of aqueous, and communicate with each other and with both the aqueous and vitreous chambers of the eyes.

Wherein comes this anti-infection power of the diaphragm? Personally I do not see it, and to state that the existence intact of this diaphragm of the eye is one of the main advantages of the non-capsular over the capsular and to bring this forward as one of the fundamental objections to the capsular operation is to more or less admit the weakness of the objection.

2. Next is the question of the integrity of the supporting diaphragm of the eye. After a non-capsular operation has been performed I understand this supporting diaphragm to consist of the following structures —

(a) The rolled up lacerated anterior capsule of the lens with its attached orbiculo-antero-capsular fibres of the suspensory ligament.

(b) An intact posterior capsule of the lens with its attached orbiculo-posterior-capsular fibres and the cilio-posterior fibres of the suspensory ligament.

(c) The equatorial fibres of the suspensory ligament inserted on to the equator of the lens capsule.

(d) The above sets of fibres constituting together the entire suspensory ligament of the lens.

(e) An intact hyaloid membrane.

(To be continued)

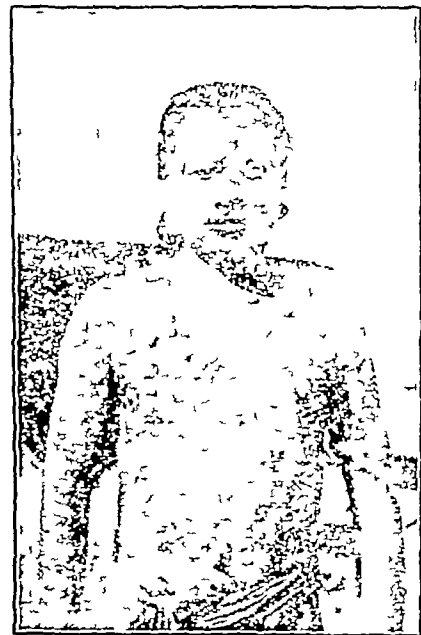
A Mirror of Hospital Practice.

YAWS IN MANIPUR STATE.

BY F. POWELL CONNOR, F.R.C.S.,

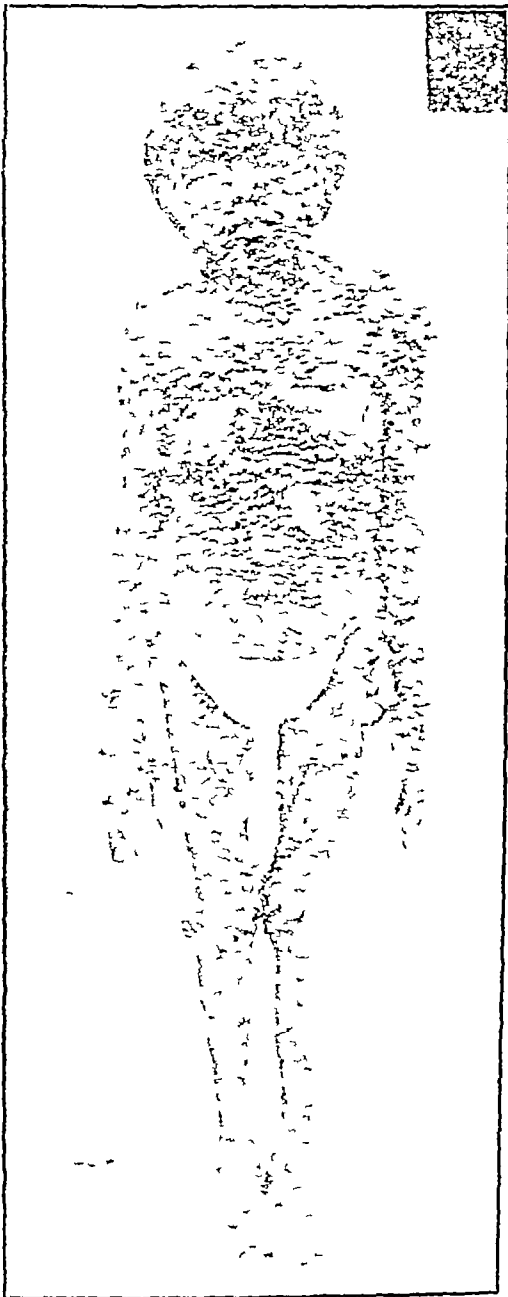
CAPTAIN, I.M.S.

IN the Naga Hills District and in Manipur a great variety of skin affections occur among the hillmen. The Nagas show an utter disregard for personal cleanliness and therefore scabies, pediculosis, &c, are very common, and these, when neglected, present a variety of skin lesions. The "Naga Soire," supposed by some to be of the same type as Delhi Boil, is not uncommon. I have not succeeded in discovering the Leishman-Donovan bodies in such cases. Add to these syphilitic and ordinary diseases of the skin, and it will be seen that diagnosis is not at all times easy. My present object is to draw attention to still another type of skin disease, which so far as I am aware, has not been described as existing here before.



In June last, two Kabui Naga boys were admitted into hospital with a marked eruption on the thighs, buttocks, genitals, &c. Their ages were 15 and 11 respectively, and the rash resembled that of syphilis more than anything else, but no definite history of this disease could be obtained. They came from the hills to the South-West of Manipur. On the 19th of November 1905, two other Kabuis came to the State Hospital, with a much more definite and marked eruption. They came from a village in the same neighbourhood as the previous cases, one was aged about 45 and the other a young adult, and they lived in the same house. No history of syphilis could

be obtained, they called the disease "Yongli," and stated that there were five other cases at that time in the village, all children, and others had recovered from a similar disease. Among the latter was a young son of the elder man. The appearance of the rash on the younger man is graphically illustrated by the accompanying photograph, and the disease had all the characters of yaws—the dry brown crust, firmly covering a painless, pinky, granulation-like papule, which exudes a yellowish



fluid to rapidly form a fresh cap. But it is not my purpose here to go into the exact appearance and distribution of the rash. The question of a primary sore and a primary fungoid rash, I have not been able to personally verify. The case illustrated here stated that his disease began with the papule to be seen at the aperture of the right nostril. He said that the disease was contagious.

A year ago while in the Lower Chindwin District I saw some cases of yaws, by the kindness of the Civil Surgeon at Monywa, and in a recent number of the *Indian Medical Gazette*, the prevalence of the disease there was shewn to be extensive. In Assam the disease has already been described, so that its presence in Manipur supplies a link in the chain of its distribution. As already mentioned, most of the cases I have seen came from the South-West, round Tamenglong, but I have heard of supposed cases in the Tangkhul county, also in East Manipur. It would seem as if the disease extended from Assam to Burma. It is a matter of personal regret that I have not been able to more exactly define its limits in this State before leaving.

In conclusion, I may add that the typical granulomata and the exudation have, on several occasions, been examined without success for the recently described spirochæte. The method employed was staining with Leishman for some hours.

CRYPTORCHIDES

By J. T. PARKINSON,

Civil Surgeon, Fatehpur, U. P.

THERE is much difference of opinion regarding the procreative power of the cryptorchid, and while some agree that non-descent of the testicles means incurable sterility, others on the other hand quote cases which go to show that cryptorchides are not necessarily so, on the contrary have been known to be fruitful. All agree, however, that the cryptorchid is not necessarily incapable of sexual intercourse which may be prolific or unprolific according to different authorities.

It is on this point of "capability in a cryptorchid of sexual intercourse" in which I was called upon to give medical evidence in a case a short while ago, and as such cases are extremely rarely met with, I venture to publish it, hoping it may be of some interest to the readers of this journal.

The condition was met with in a man of about 50 years of age. He made a statement to me when up for medical examination to the effect, that for the past 16 years he had been, and now was, incapable of sexual intercourse. He went on to say that the testicles originally had occupied the scrotum, but so far back as 16 years they had melted away. To use the man's own expression, they had "*gul gaya*" from taking medicines.

Examination revealed a fully developed, if not more than usually large penis. The scrotum was small, empty and shrivelled up. There was no cicatrix on either side to show that the testes had been removed by operation. Manipulation failed to detect any trace of an atrophied or shrivelled up testicle or remnants

of a cord, and the appearance on inspection was such as to indicate that the scrotum had never contained a testicle on either side, in fact that there had never been any connection between the abdominal cavity and the scrotum. To give greater weight to this conclusion the man had a hernial protrusion on the left side for which he was wearing a truss. The hernia simply protruded forwards at the lower part of the abdomen like a bubonocoele easily reducible and not descending into the scrotum. Examining the protrusion carefully there were no traces of testicle or cord found in connection with it. Thus it appeared to me that the tract of the cord onwards into the scrotum had never existed, or why should the rupture remain in the position it did? The man had hair on the pubis and beyond that he affected long hair on the head there was no appearance of effeminacy about him.

Taking everything into consideration, I doubted the man's statement regarding the melting away of the testicles and concluded here was a case rarely met with, namely, a cryptorchid, in which both testicles had never descended into the scrotum, but had remained in the abdominal cavity. I was convinced that even in shrinking and atrophy of the testicles which occurs under certain circumstances, there would not be, as in this case, an entire absence of any trace of cord or testicle on both sides. Further I venture to say that 16 years would not have elapsed after the testicles had melted away, as the patient stated, without rendering the subject I examined less masculine than he certainly was with all the marks of virility present except the absent testes.

The question in this case referred only to his capacity for sexual intercourse and having come to the conclusion above noted, I gave it as my opinion that he was capable. He denied capacity for sexual intercourse and stated he had lost it 16 years previously. However, it was conclusively proved that he had for the past two years, off and on, been on terms of intimacy with a woman, in fact at times living with her. A time came when he wished to get her away for good to his home, but she did not fall in with his wishes. Now comes the trouble, and the cryptorchid resorted to a measure which he thought would bring pressure to bear on the woman's relations and so secure his wish. He accused them of retaining certain sums of money, jewellery, &c, which he had, he stated, given them for safe custody, to keep while he was away, and it is to be noted the woman was away with him on this occasion. The relatives were not to be coerced in this way and brought up the real cause of all the trouble, *viz.*,—the woman's intimacy with this man and her refusal to go over to him entirely. He denied capacity to refute their allegations, but everything pointed to his statement being wholly unworthy of credence. The woman herself stated that he had had intercourse with her once which, of

course was not the whole truth after two years of intimacy well known to many. The cryptorchid was convicted for making a false charge.

Remarks—The above case would add another to those which go to show that malposition of the testes implies sterility. In this case there was plenty of evidence to prove the guilty intimacy of these two persons for about two years which however was unfruitful.

(2) Why did the man state that his testicles originally occupied the scrotum and melted away? Because if this had been true he would necessarily have been incapable, which he certainly was not.

(3) Such cases are extremely rarely seen, which is my reason for publishing it as already stated.

A CASE OF STAB WOUND OF THE SPINAL CORD

By F. A. L. HAMMOND,

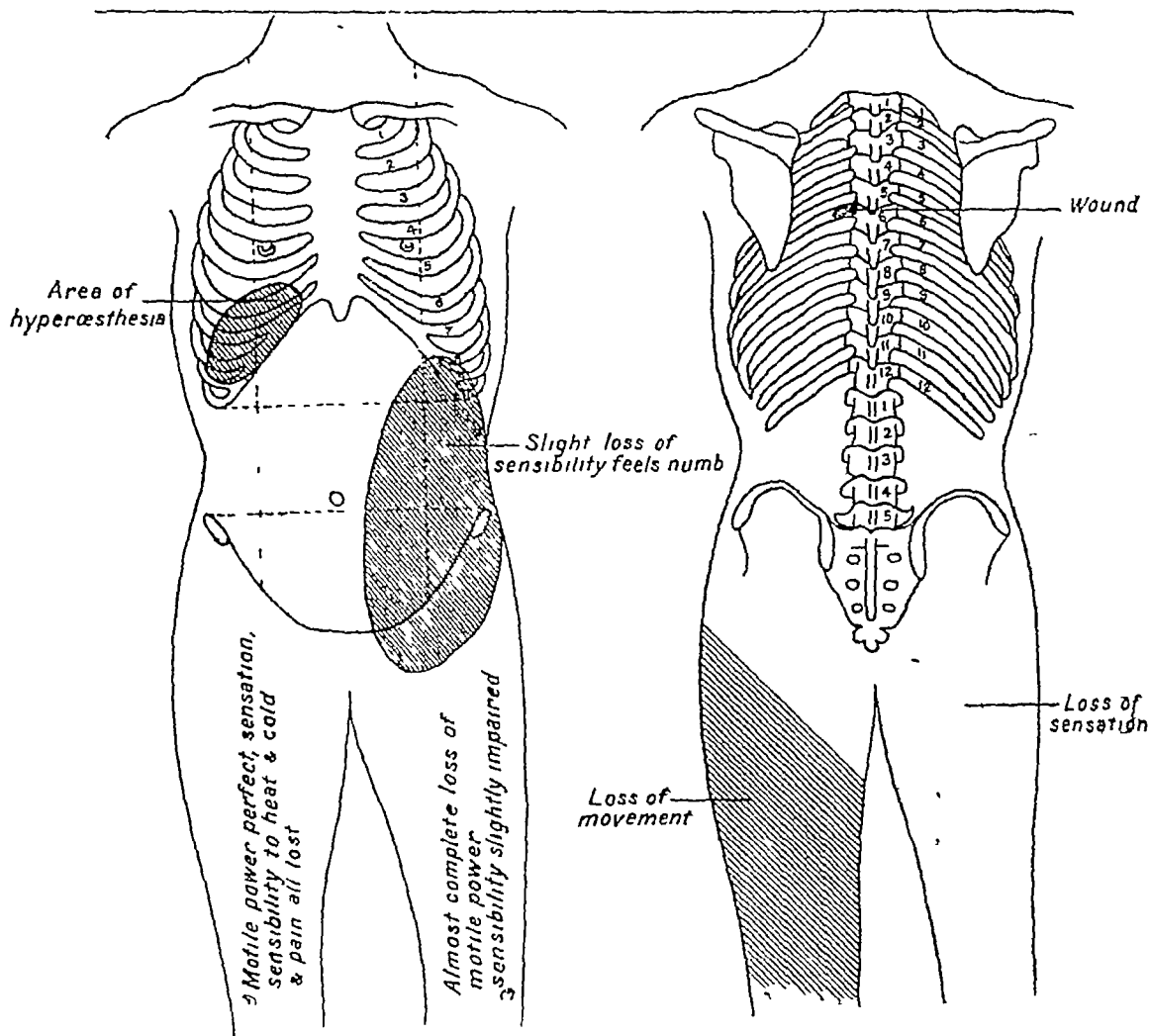
Captain, I. M. S.

THE following case is interesting on account of the unusual situation of the injury. If it had been possible to estimate exactly the extent to which the spinal cord had been severed, many still disputed questions as to the crossing of the various sensory fibres, *eg.*, those of heat and cold, muscular sense, &c, might have been settled.

A Burman male, Mong San Khine, aged 41, was brought to the General Hospital, Rangoon, on the night of the 18th April of this year with two stab wounds, one superficial one on the right cheek, 1 inch long and $\frac{1}{2}$ inch deep (of no surgical importance), and another on the left side of the spine, $\frac{1}{2}$ inch long and 2 inches deep, running obliquely upwards and inwards in the interval between the fifth and sixth dorsal vertebrae. They were obviously inflicted by a clasp-knife.

On admission he complained of pain in the left leg and thigh with loss of motor power, but no loss of sensation.

The following morning it was noticed that there was a fairly free discharge of thin serous fluid slightly blood-stained from the wound over the spine. The patellar reflexes on both sides were abolished. There was complete loss of sensibility to touch, heat and cold, and pain in the right leg and thigh. Muscular sense was unimpaired in this lower extremity, and there was no diminution of motile power. The left leg and thigh had completely lost all power of movement, while sensation was absolutely normal. There was no interference with micturition or defecation. A circular patch of hyperaesthesia, roughly 4 inches in diameter, was found over the right lower rib cartilages (*vide diagram*). Three days later (on the 22nd), it was noticed that there was slight diminution of sensibility over the whole of the left leg and



thigh, and the patient complained of a feeling of numbness in this lower extremity. The numb feeling and diminished tactile sensibility were continued up on to the left side of the abdomen.

The discharge from the wound had now very nearly stopped, and in four days' time (27th) the wound had practically healed.

The patient remained in the same state, except for a slight intercurrent attack of malaria which yielded to the usual routine treatment of hypodermic injections of quinine until the 11th May,—23 days after admission, when the left leg showed signs of improvement in motile power, the knee being able to be very slightly flexed and extended. The muscles of the leg had now atrophied to a considerable degree in spite of massage, but they slowly improved in power, and still further improvement was noted but only to a very slight degree. There was no change in the sensibility of the right leg, but the patch of hyperæsthesia over the right hypochondriac area disappeared.

The extent of the various changes are shown (as accurately as possible) on the accompanying chart. On the 20th May the patient expressed a wish to return home and he was allowed to do so and asked to report in ten days' time, but nothing further has been seen of him.

It is probable that the greater part of the left side of the spinal cord was severed, the motor fibres to the left lower extremity and the sensory fibres of all kinds to the right side not having yet decussated, being the chief sufferers.

PERFORATION OF LUNG WITH A SHARP POINTED IRON ROD RECOVERY

BY LAWRENCE G. FINK, M.B., C.M., EDIN.

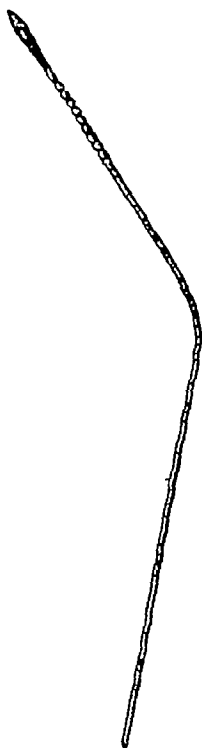
Civil Surgeon, Mergui

IN the Medical Annual, 1903, page 445, Mr. Keith Monsarrat, F.R.C.S., writes as follows regarding injuries of the lungs—

"In the majority of wounds of the chest involving the lungs, surgeons are at present agreed that no active interference is called for beyond what is generally spoken of as conservative. Many penetrating wounds, even where the injury to the lung is extensive and the hæmorrhage copious, produce no symptoms of great gravity and recovery follows uneventfully under this conservative method. In cases of large hæmothorax, however, the death-rate remains high. Nélaton gives it as 50 per cent, while the mortality for penetrating wounds of the thorax generally is given as 12 per cent. The immediate causes of death in such cases are hæmorrhage

and collapse of the lung from either pneumothorax or hæmothorax or both, the secondary causes are pneumonia, empyema and abscess or gangrene of the lung. By the term "Conservative treatment" is understood absolute rest, the closure of the wound, cold applications and compression by bandages. The case reported below is an excellent example of a practically uneventful recovery, under "Conservative treatment," of a very severe injury to the right lung.

A Burmese woman, 23 years of age, was brought to hospital by the Police on 7th June 1905. The history of the case was, that she had been stabbed in the back by an iron rod, which on examination was found projecting $18\frac{1}{2}$ inches from the wound. It was also stated that the rod had been fitted into a bamboo about 4 feet long, so that the weapon was practically a spear. The external wound was about an inch long,



situated one inch below and 2 inches internal to the angle of left scapula. The direction of the wound was inwards and to the right. Acute pain, increased by pressure over the part, was felt in the right side, about $2\frac{1}{2}$ inches below the right axilla. The portion of the iron rod external to the wound was almost at right angles to the portion inside. This is beautifully illustrated in the photograph. This bending of the rod was caused by the force used by the assailant in trying to withdraw the weapon. The rod separated from the bamboo and remained firmly fixed in the woman's back. When her "dying declaration" had been recorded, I removed the rod, a good strong pull being required. This was done without chloroform. There was practically no bleeding. The wound was syringed with lotio hydrarg perchloride

and dressed with antiseptic gauze. The woman made an uneventful recovery and was discharged on 10th July, 1905. For about three weeks there was some dullness on percussion over the back of the right lung, bronchial breathing, cough with frothy expectoration, at first slightly tinged with blood. The lung gradually cleaned up and the cough entirely passed away. The temperature was practically normal throughout the illness.

When the rod was extracted it was found that it was 28 inches in length, of which $9\frac{1}{2}$ inches had penetrated the woman's chest. It was $\frac{1}{4}$ -inch in diameter and was roughly triangular at its pointed end and had a corkscrew twist for about $4\frac{1}{2}$ inches. It was rusty in appearance and from a surgical point of view dangerously unclean. Such being the case it is marvellous how the woman escaped from septic infection of the lungs. The treatment adopted was "conservative," only one injection of perchloride lotion having been given. The external wound was not sewn up but was carefully cleaned daily and protected with antiseptic gauze.

When one has an experience, such as this, and when one reads the remarks quoted at the beginning of this contribution, one wonders why any severe penetrating wound of the lungs should escape from the severe complications enumerated by M^r Mousariat, while on the other hand cases of "traumatic pneumonia" without any external wound, but with some laceration of the lung tissue are said to be frequent and often end fatally. Dr Wilks, writing in the *British Medical Journal*, dated 24th March 1906, page 679, under the heading "Traumatic Pneumonia" records a fatal case in which, without much cutaneous bruising, the lung was found severely lacerated. He concludes by saying that he believes that traumatism is a much more frequent cause of pneumonia than is generally recognized. The patient's constitution has probably much to do with the onset or otherwise of lung complications. The patient whose case I have recorded was a healthy young woman, leading an open air life and her tissues were able to battle against any septic invasion, and to use Dr Wilks' expression, "the pneumococcus had not time to take up its abode." The depth of the woman's chest was $8\frac{1}{2}$ inches, so that if the weapon had been driven straight forward the point would probably have wounded the heart.

SOME SURGICAL CASES.

BY P GABBETT,

MAJOR, I M S,

Madras

ABSCESS OF SCROTUM MISTAKEN FOR STRANGULATED HERNIA

AN old man admitted with a swollen cedematous scrotum, gave a history of an old reducible hernia which ten days ago had become

irreducible Constipation, vomiting, and pain had also been present for the last four days. The diagnosis of strangulated inguinal hernia seemed clear and an incision was, without loss of time, made over the lower end of the inguinal canal. The sac of a large hernia was found, but it was quite empty. This incision was accordingly closed, another made into the bottom of the scrotum and a large quantity of very foul-smelling pus evacuated. The smell was not faecal but rather that of an extravasation of urine abscess. There was no history of any trouble in micturition and urine was passed freely. The track led up towards the triangular ligament. The bowels were freely opened after castor-oil and enemata. Five days afterwards he had all the appearance of a dying man, and though the pulse still felt slow and strong, he died half an hour after my visit. No *post-mortem* was obtainable.

The moral is an old one —

Rely rather on physical signs than on any history of symptoms, however clearly they may point to a diagnosis by themselves.

STRANGULATED INGUINAL HERNIA, FÆCAL FISTULA

Patient admitted with sloughing scrotum and escape of faeces by an opening below Poupait's ligament. There was also a large superficial cavity between the skin and the muscles above Poupait's ligament, containing gas and faeces, strangulation said to have occurred seven days ago.

General condition good, no temperature. The abdomen was opened by cutting through the inguinal canal, and the incision extended as required. After a puzzling exploration the large ragged opening occupying two-thirds of the circumference was found in the small intestine close to the ileo-cæcal junction. About two inches of gut were removed and an end to end junction made and the line of suture placed close to the lower end of the incision with a gauze drain leading down to it.

Three days afterwards faeces were again escaping. It was proposed to perform a second operation at some subsequent date, but the patient absconded.

The survival of a case of strangulated hernia until the formation of a natural fistula is not, I imagine, a common occurrence, but I have seen no statistics on the subject.

The rapid giving way of the sutures is a proof of the danger of attempting to suture gut, that is, in any way damaged. Luckily in this case the line of union could be placed, so that leakage would not be likely to take place into the general peritoneal cavity.

Lateral anastomosis higher up would, no doubt, have given a better chance of union, but I hesitated about bringing healthy gut down into an area which was by no means aseptic, while locally the cæcum was fixed and could

not be drawn down sufficiently for the purpose. It also seemed that another incision higher up for the purpose of anastomosing small intestine and ascending colon involved considerable risk of infection from the manipulation necessary to identify the proper loop of intestine.

On the other hand, an artificial anus in the small intestine cannot be left long without the patient's strength suffering, not to mention the horrible stench and discomfort of the constant escape of liquid faeces, so that something has to be attempted before long.

NATURAL CURE OF PERFORATED GASTRIC ULCER—PERI GASTRIC ABSCESS

A middle aged man admitted with acute dyspeptic symptoms and a hard fixed tumour to the right and two inches below the epigastric angle.

The duration of symptoms was said to have been three years. Vomiting had been a prominent symptom until five months previously. For the last five months vomiting had almost ceased. No history of hæmatemesis was obtained. The balance of evidence was in favour of carcinoma of the pylorus, but the fixation of the tumour to the rectus muscle and its superficial situation were unusual.

The abdomen was opened in the middle line, that is, to one side of the tumour. The stomach was found firmly adherent by a web of adhesions to the abdominal wall, the centre of the web being occupied by the tumour.

A second incision was then made over the tumour itself and a few diachms of pus evacuated.

As the adhesions were very extensive and nothing could have been done to prevent their reformation, had they been divided, the median incision was closed.

The most likely explanation of the origin of the conditions found was that an ulcer of the anterior gastric wall had perforated, but had become shut off by peri-gastric adhesions—an instance of natural cure of perforated gastric ulcer.

MISPLACED LOBULATED KIDNEY

A young man admitted with painful elastic tumour over the situation of the appendix of ten months' duration. The probabilities seemed to point to an old appendix abscess, but the tumour was unusually firm and localised for an encysted abscess.

After adherent omentum had been tied and cut away a dark red lobulated tumour was seen with a shining capsule. This was firmly adherent to gut below, and internally and externally to the abdominal wall. It had all the appearance of a lobulated kidney, and as it was evidently very vascular and the adhesions to gut very firm it was left in situ. When the wound had healed the patient stated that his pain was quite relieved and expressed himself satisfied with the result of the operation.

(To be continued)

Indian Medical Gazette.

AUGUST, 1906

ON LEPROSY AND FISH EATING *

(Communicated)

THE opinions of Mr Jonathan Hutchinson on the connection between the eating of fish under certain conditions and leprosy are well known, and he has now collected his work on this subject and published it in a book under the above title. This book has been written for the general public, and, as the writer says, "in fragments," and no attempt has been made to arrange in logical sequence the facts and deductions by which the fish hypothesis is supported, so that it is only by a laborious search that it is possible to arrive, with any degree of exactitude, at the steps of the argument employed. They are somewhat as follows:

The main cause of leprosy is certainly not contagion, nor inheritance, nor telluric emanations, nor the result of temperature and climate, nor of poverty, nor of neglect of the ordinary rules of life, nor is the cause exposure to hardship, nor yet peculiarities of race. It is clear therefore that the poison must be taken inadvertently in connection with some kind of kinds of food, that food being fish in a state of commencing the decomposition, and eaten uncooked. As regards the poison, it is the leprosy bacillus. This bacillus is conceived of in one place as being, in common with the tubercle bacillus, the offspring of a more nearly primitive organism of almost ubiquitous distribution and which is capable of development under different conditions, now into the bacillus of common tuberculosis, now into that of leprosy. On the same page another proposition is put forward, namely, that the bacillus of leprosy is, like that of tuberculosis, well nigh ubiquitous, and that it assumes activity under the stimulus of some ingredient supplied by fish in an early stage of decomposition, having once assumed such activity, it can reproduce itself indefinitely in the tissues of the human body, and may be transferred from

one person to another, if taken into the stomach in the living state. A third proposition is made, namely, that the tubercle bacillus (existing in a latent state in many persons and often hereditary) may in certain individuals become modified by some element which exists in badly cured fish, and may be made to assume the activities which result in the phenomena of leprosy. No part of the proposition is, however, to be considered established beyond the fundamental one, that in some way the eating of bad or half cured fish does cause the disease.

A good deal of this curious conjecturing as to the interchangeability of the leprosy and tubercle bacilli, is necessitated by the author's opinion that leprosy is not contagious, an opinion which he has recently had to modify by the statement that contagion can only be accomplished by the agency of food, he does not, however, call it contagion but "commensual communication." It will be evident that there is much to question in such a hypothesis. Taking it step by step it is obvious that the process of exclusion by which food is arrived at as the cause of leprosy is glaringly incomplete, and we may appropriately note here that in no part of the book is any reference made to our knowledge of the processes of immunity, a knowledge which has been growing so remarkably in recent years, as a factor in the problem.

This is a distinctly startling statement, but it is absolutely and literally true that there is here presented a hypothesis which entirely omits the question of personal immunity whether by antitoxin, opsonin, or alexin and copula, or by any other means as a possible factor in the distribution of leprosy. It is the factor which is probably the most important of all, and its omission leaves the fish hypothesis years behind the times. The reasons for rejecting contagion as the means by which leprosy is carried from one person to another are these. There are in London many lepers, all imported cases, there is no isolation and no spread. Many Norwegian lepers cross to America, mostly unrecognised, and mix freely with others, yet no leprosy foci have ever been established by them in the States. In Europeans who have contracted leprosy it has never been recorded, the author believes, that the husband and wife have suffered together. If leprosy were a contagious disease it would never die out from a community.

* By Jonathan Hutchinson. Archibald Constable and Co., London, 420 pages, 16 Illustrations. Price 12s. 6d.

except under conditions of the most strict isolation, and on the supposition of contagion it is impossible to explain the fact that the disease died out in England and in many other places from which it has disappeared. We repeat that the question of acquired and transmitted personal immunity has not been considered, and we believe will be found to fit the facts when these have been ascertained.

We will leave at present the consideration of fish as the supposed cause of leprosy, and pass on to the evidence given for the suggestion that leprosy is a form of scrofula. So far as we can ascertain it is as follows. Both are indigenous in countless communities, in the special form of scrofula known as *lupus erythematosus*, there are not found tubercle bacilli, nor are leprosy bacilli found in the skin in the maculo-anæsthetic form of leprosy, *lupus erythematosus* is a dermatitis with dermatitic adenitis, in leprosy there is a dermatitis with dermatitic neuritis, both have very long periods of incubation, both vary greatly in acuteness and severity, in both chronic and insidious forms occur as well as severe ones, in both recovery is the rule if the patient survives, and in both after apparent recovery there is seldom repetition of the outbreak. Lastly there is the following case cited, a Swedish woman from Gotenbug, both of whose parents died of lung disease, who had never seen leprosy and who had lived largely on fish, both fresh and salted, but always cooked, developed leprosy. This case, he says, suggests that tuberculosis inherited from parents may, by fish diet, be transmitted into leprosy in the offspring. We have given this argument in detail because it appears to us to be characteristic of the way in which the structure of the whole of this hypothesis is built on the weakest of foundations.

Passing now to the consideration of the fish hypothesis itself we find that the chief reasons for which fish is considered to be the article of food responsible for the propagation of leprosy are these. Granting that it is due to an article of food, it must be one which is of universal use and which has the same quality in all lands. There is no vegetable met with in all the districts affected by leprosy, the vehicle is not milk, for some races, the Tartars for instance, almost live on milk and yet have no leprosy, and there are many leprosy centres where milk is almost or wholly unknown, while of flesh foods there is no reason to suspect that of ani-

mals and birds. We may note that the author has not taken into account the most widespread article of food, namely, salt. All places where leprosy now prevails, he continues, are either on the seacoast or near to rivers or lakes, except in the case of India, and this exception he considers as probably not so great as it at first sight appears. The disease is of such special and emphatic individuality that it can have but one and the same cause. That cause is in nineteen-twentieths of its instances fish, and respecting the twentieth he considers that despite defects in evidence the inference is justified that it is fish. But, we point out, the cause is in all cases the bacillus irrespective of its vehicle or point of introduction, and the same bacillus will produce the same reaction in the human being in whatever way it may gain entrance to the tissues. As regards the kind of fish which is considered to cause the disease, one finds from scattered references up and down the book that although salt fish is constantly spoken of as a cause of leprosy, this is not what is really meant. Properly salted fish is looked upon as perfectly safe. The article which is considered to be the cause of leprosy is fish in an early stage of decomposition either from not having been preserved at all, or from having been merely dried or improperly salted and subsequently eaten uncooked. We believe that in one place only in the book (page 49) is it stated that it is uncooked fish of the character just stated which is considered responsible for the transmission of leprosy, and although much space is devoted to the attempt to prove that leprosy is associated with the ingestion of decomposing fish, no attempt at all is made to show that the fish is uncooked or imperfectly cooked. Having followed the argument so far, the conviction occurs that here at all events is something which is capable of proof or disproof, seeing that all that is necessary to test the matter is to ascertain whether the incidence of leprosy is co-extensive with the use as a food of decomposing fish. Such an expectation is doomed to disappointment. We read "The fish hypothesis assumes that it is probable that even in fish in a state of decomposition the presence of the dangerous ingredient is exceedingly rare, but that a very small quantity of fish containing it may be efficient in the production of the disease. Thus the large or small consumption of fish has little to do with the matter." In other words Mr Hutchinson has hedged, and the hypothesis as now enunciated

by him is incapable of proof or disproof, and his challenge of refutation he can make with perfect safety. The whole tenor of the book shows that the author occupies towards his offspring the position of an interested advocate, and never that of an impartial judge. The fish hypothesis is supported thus. As a general statement it is true that all places where leprosy is now prevalent are either on the seacoast or near to rivers or lakes, all over the world it is a disease of tribes which fish and not of those which hunt. It was very prevalent in Europe in the middle ages and began to decline before the reformation, the conclusion reached being that its prevalence was due to the eating of improperly dried fish on fast days, and its disappearance to the religious laxity which he assumes to have preceded the reformation. He shows quite clearly that at that time isolation of lepers was not attempted. Leprosy has not been prevalent in Russia because the Greek Church does not allow of the eating of fish on fast days. It occurs more in men than in women, partly because men no doubt get an unfairly large share of the decomposing fish food where it is an expensive luxury, and partly because men are dirtier feeders. Among the Hawaiians the appearance of leprosy, forty years after white men came among them, was coincident with the establishment of a factory for curing fish. From Cape Town dried fish is distributed largely to the Malmesbury district, a noted centre for leprosy. Leprosy in Norway only occurs on a strip of the western coast where there is little land for cultivation, and fish is the principal article of food and is preferred tainted. There is a large export of dried fish from Norway to Spain and from Newfoundland to Portugal, and there is much leprosy in Spain chiefly along the north and south coasts. We should imagine that were there any value in this argument, the incidence of leprosy in Spain and Portugal would follow the trade routes, and not be chiefly incident on the more inaccessible north and south coasts.

The large proportion of lepers in India who are Christians, he considers a proof of his hypothesis. We have ascertained from the manager of a leper asylum with 200 inmates that nearly all the Christian lepers there have become Christian since their admission into the asylum as lepers. There is one part of Mr. Hutchinson's argument, which we do consider to be built on a basis

solid and capable of being upheld, though we entirely dissent from the conclusion drawn from the facts, we refer to the inverse ratio between the abundance of salt and the incidence of leprosy. The author gives the amount of salt required daily by an adult as from 300 to 400 grains including that present in the food, he states that the development of the salt trade and the introduction of better kinds of salt have often been coincident with the decline of leprosy in a very marked manner, that for example one great difference between Northern and Southern China is that in the one salt is abundantly produced, and is an article of export, while in the other it is imported and subject to a tax, that in the latter leprosy is abundant and in the former unknown. He brings forward other statements of a like nature. Almost the whole of the salt used for fish curing in Norway is imported, and we presume therefore dear, and that it is unlikely that the poor will get it in sufficient quantities. It is worthy of note that it is precisely those parts of Europe which are the most remote from the beaten tracks of commerce, and to which the importation of salt in common with other commodities would be unsatisfactory, that leprosy has lingered longest. Doubtless no one predisposing cause accounts for all the facts. In some places, probably the Sandwich Islands group is one of them, leprosy has appeared recently because it has been recently introduced, and, just as measles having within comparatively recent years been introduced into Iceland, the Faeroe Islands and the Fiji Archipelago, has raged virulently among hereditarily unprotected races, so has leprosy in the Sandwich Islands increased by leaps and bounds, till 40 years after its introduction, every fiftieth individual was a leper. Some too of the world-wide decline of leprosy may probably be fairly put down to the natural decline of an epidemic disease in the course of years, one of the most familiar examples of which is plague.

We have no intention of bringing forward without proof a salt hypothesis, as opposed to a fish hypothesis and as being the last word on the leprosy question. It is, of course, as readers of the *Indian Medical Gazette* are aware, not a new one, and we hope shortly to be able to test it in certain directions which we believe have never been attempted—a matter which is of some interest, as we understand that it is quite impossible to consider the Kasauli tests as final.

Current Topics.

OUR SPECIAL PLAGUE NUMBER

WE have much pleasure in announcing that the Rs 100 prize offered by Messrs Thacker, Spink & Co., for the best essay on 'How Plague is spread,' has been awarded to Major S. Browning Smith, I M S, Plague Medical Officer, Punjab, for his paper on 'The Spread of Plague' which appeared in our July number. We have to thank Colonel Lukis, I M S, Principal of the Medical College, Calcutta, for kindly judging the papers received and would congratulate Major Browning Smith on the excellent essay sent in. Several of the other papers sent in were also of great merit,—Captain A F Stevens' on 'The Natural History of Plague' being particularly good.

INDIAN MEDICAL SERVICE

ANNUAL DINNER IN LONDON

THE annual dinner of the Indian Medical Service was held at the New Gaiety Restaurant, on June 14th. Surgeon-General L D Spencer, C B, presided, and over sixty members of the service, past and present, attended. The guests included the President, Royal College of Physicians, Sir Richard Douglas Powell, Bart, K C V O, Director-General, R N Medical Service, Inspector-General H M Ellis, Director-General, A M D, Surgeon-General A Keogh, C B, Mr Austin Low, Editor of the *Lancet*, Editor of the *British Medical Journal*.

The only official toast was H M "the King-Emperor." This having been duly honoured the Chairman stated that, in compliance with a special request, there would be no speeches, but that the evening would now be spent in conversing with old friends, and renewing those acquaintanceships which such an opportunity as the present occasion, only too seldom afforded. In concluding he alluded in feeling terms, and with the entire sympathy of those present, to the great loss which the service had sustained in the recent death of that good fellow and sincere and generous friend, the late Surgeon-General Charles Sibthorpe, C B, F R C P I. Before the company dispersed Surgeon-General J Cleghorn, C S I, in an informal speech, proposed the health of the Honorary Secretary, Lt-Col P J Freyer, to whose initiation and energy the annual dinner and its success was largely due. He alluded, in terms of warm appreciation, to the brilliant career of that officer, and to the eminent position which he had attained in the London surgical world. The toast was drunk with musical honours. Lt-Col P J Freyer replied with characteristic modesty, thanking his brother-officers for the honour accorded him and ascribing his present successful position to his previous training in India, where every man was early thrown upon his own resources, and made to work out his own salvation.

ANNUAL DINNER IN SIMLA

THIS dinner was held as usual at the United Service Club on June 29th. There were 21 members of the service present and would have been 28, but several were prevented from getting up owing to the heavy rain and broken railway. Surgeon-General Borsford, Director-General, I M S, presided, and the dinner proved most enjoyable to those who were fortunate enough to be there.

ENTERIC FEVER IN INDIA

THE very able and eagerly expected epidemiological work on 'Enteric Fever in India,' by Major Ernest Roberts, I M S, was published by Messrs Thacker, Spink & Co, of Calcutta, in July. A review of the book will appear in our columns in due course, but we should be doing an injustice to the author and a distinct injury to his readers, who will be numerous, were we to await the detailed examination and review which such a work demands and deserves, before recording the publication. Major Roberts' qualifications, medical and literary, are well known and he speaks on the subject of Enteric Fever with authority. Such works largely based as they must be on vital statistics, are only too often dry and uninteresting. Major Roberts' book on the contrary, as far as we have studied it, is interesting on every page while the form of its literary presentation, its literary garnish, for which he too modestly apologises, is beyond reproach. It charms indeed as much as the scientific matter interests.

METHODS OF DEMONSTRATING TRYPANOSOMIASIS

IN Vol VI, Pt 2 of the Thompson Yates Laboratory Reports, there is an account by J E Dutton and J L Todd of "gland puncture as a method of demonstrating the presence of the parasite in trypanosomiasis." Examination of the peripheral blood was not of much benefit as the parasites appear only periodically therein. A better method was found in adding some diluent which prevented coagulation to the blood and then centrifugalizing it. Lumbar puncture was found useful by Castellani of Colombo, but the best method seems to be that introduced by Captain Greig, I M S, and Lieut Gray, R A M C. It is found that as a rule trypanosomes are present in the few drops of fluid drawn by a hypodermic syringe from the enlarged glands of infected persons, and parasites can be often demonstrated by this method when all others fail, and by reason of its simplicity the method of Captain Greig bids fair to become the routine method.

This method has now been extensively tested by Dutton and Todd (*see* Liverpool Tropical School, Memoir XVIII, March 1906), and they conclude that Greig's method of "gland puncture" is by far the most efficient method of demonstrating the presence of trypanosomes in cases of trypanosomiasis.

Drs Dutton and Todd then proceeded to determine the prevalence of gland enlargements and their value as an index of the prevalence of trypanosomiasis. After making a large number of investigations they conclude (Memorandum XVIII, pp 13 and 15), that (1) in a great majority of cases "enlarged cervical glands" in the apparently healthy negroes mean trypanosomiasis, (2) unless the glands of apparently healthy persons were enlarged, juices from them did not contain trypanosomes, (3) enlarged cervical glands, without obvious cause, do not occur in districts from which trypanosomiasis is absent, (4) the practical result of these observations is that every negro with enlarged glands, must be considered, until the contrary is proved, to be a case of trypanosomiasis.

This is a practical fact and the presence of these enlarged glands afford an easy means of detecting persons infected, and it is only by keeping such infected persons out of healthy districts that these districts can remain uninfected.

LUNATIC ASYLUMS IN THE CENTRAL PROVINCES

The following extract is taken from the annual Government Resolution on the Asylums of the Central Provinces —

"In the last Triennial Resolution on the Lunatic Asylums of the Central Provinces, it was decided that the project for amalgamating the two existing asylums at Nagpur and Jubbulpore must be definitely abandoned, in view of the unsuitability of the Nagpur buildings for such alteration as would have been necessary in order to bring them up to modern requirements, of the heavy initial expenditure that the construction of a new asylum would have entailed, and of the fact that the number of its inmates would not be sufficiently large to justify the employment of a whole-time alienist, which was an essential part of scheme for centralization. It was accordingly decided that the two existing asylums should be maintained, but that, in order to relieve the overcrowding which existed at Jubbulpore, all female lunatics should be transferred thence to Nagpur, and that certain additions should be made to the Nagpur Asylum in order to enable this to be done. During 1903-1904 two wards to accommodate 38 patients, a block of 6 cells, and quarters for a matron were accordingly erected, but at the end of 1904 further enlargement was stopped, pending consideration of a scheme for the establishment at Chhindwara of a Central Asylum for the reception of European lunatics from the various provinces of the Bengal Presidency, and for the combination therewith of an asylum for native lunatics from the Central Provinces. After considerable discussion the proposed site at Chhindwara has been found to present certain disadvantages for the location of a Central European Asylum, and the project for the construction of the two Central Asylums there has therefore been abandoned. The further extensions to the Nagpur Asylum, which were postponed pending the settlement of the above project, should now be carried into effect with a view to the transfer thither of the female inmates of the Jubbulpore Asylum. Though it cannot be denied that the existing arrangements are by no means up to the standard of modern scientific requirements, they are not so seriously defective as to make the construction of a Central Asylum a matter of great urgency. It will probably, however, become necessary before very long to remove the Jubbulpore Asylum, which is most unsuitably placed, to another site."

DR. KITASATO ON PLAGUE PREVENTION

The following is a summary of a recent lecture by Dr. Kitasato, on fighting plague in Japan, delivered at a recent meeting of the Philippine Islands Medical Association. We are somewhat sceptical of the advantages to be gained by the "great international sanitary army" recommended by the eminent Japanese bacteriologist.

In 1896 plague, which had broken out in India and Hongkong, soon spread to Formosa, and it was particularly from the latter point that Japan was threatened. Strict quarantine and other sanitary measures were directed against that island, with entirely successful results. The first vessel that arrived in Japan with plague on board was found at the port of Yokohama in 1896. Since that time vessels infected with plague have arrived frequently at Nagasaki, Kobe, and Moji.

Doctor Kitasato stated that in his opinion the introduction of plague into Japan was not caused by persons, but by freight, and in all probability in cargoes of cotton from India and Hongkong, that at first the danger of cargo was not appreciated, and in consequence the infection spread rapidly at the principal seaports. The rats soon became infected, and from them human beings, in all probability, contracted plague. Since then the principal outbreaks of plague in Japan occurred in 1899-1900 and in 1902-3. In both of these epidemics the disease was probably introduced with cotton imported from Hongkong.

The last outbreak occurred in Kobe and Osaka in 1905, and as yet has not been stamped out. This outbreak was considered to be one of the worst from which Japan has yet suffered. The total number of cases of plague in Japan during 1905 was as follows: Tokyo, 15, Osaka, 134, Kagawa, 36, Moji, 9, Chiba, 11, Nara, 2, Kobe, 90. Total, 297.

The first epidemic could be traced to the importation of raw cotton and Chinese rice, from Bombay and Hongkong, respectively. The second epidemic entered through Yokohama in cargo which consisted of raw cotton, and the present epidemic at Kobe and Osaka could be traced to a steamer that entered Kobe with raw cotton.

The experience in Japan with plague has been that it generally attacks rats first and man afterwards. In February, 1905, many infected rats were found in Kobe, but it was not until May that human victims were detected. More infected rats were found in winter epidemics than in summer epidemics.

To prevent the introduction of plague into Japan, the country depended, first, upon its quarantine service, but with this alone the safety of the country could not be assured. In order to combat the disease most successfully, the country has been divided into a number of small sanitary districts, in each of which a local board of health has jurisdiction. Doctor Kitasato

expressed the opinion that one of the very best methods of prophylaxis was that adopted by the Public Health and Marine Hospital Service of the United States in sending properly qualified medical officers for duty at the principal ports, and particularly those from which plague infection might be expected to enter. He stated that by such means the country enjoyed greater security from the introduction of such diseases as plague than from any other measure which had been suggested up to the present time.

After the disease has once gained entrance to the country the most successful method of combating it is by the destruction of rats. If rats could be eliminated, the disease could be expected to disappear. In Tokyo alone 3,000 to 4,000 rats were examined daily for plague bacilli. By the examination of rats the presence of plague and future outbreaks could be predicted with almost absolute certainty. Japan has several times been protected against an outbreak of the disease by the detection of plague among rats and by then taking precautions in advance. The best method of eradicating rats was by the proper construction of warehouses and other places where rats are likely to breed. San Francisco is an excellent example of what improvement in construction of buildings could accomplish with the view of eliminating the rat question.

The present plan was, whenever a case of plague was found in a house, to have such premises surrounded by a zinc wall that extended about 3 feet above the ground and about 2 feet under the ground. By this means rats could be prevented from escaping over the wall or burrowing under it. Rat-catchers were then sent into this inclosure to destroy the rats, and thereby prevent the spread of the infection.

The value of vaccination against plague was noted. In Formosa, out of 10,176 persons vaccinated against plague, only 7 were attacked, while out of 40,000 who were unvaccinated more than 500 were infected.

For the treatment of those actually stricken two methods are in use. The one, the extirpation of the bubo, and the other, the treatment with serum. If the cases were seen early, the prognosis was not absolutely hopeless, but if seen late, not much hope could be held out to the victim.

Again referring to the destruction of rats, the accomplishment of this purpose seemed almost hopeless. In Tokyo 4,800,000 rats had been destroyed, still no decrease in the number was noticeable. Referring to the plan suggested by a recent writer that *Mus decumanus* be introduced into communities, because it was the bitter enemy of the *Mus rattus* and would probably soon destroy its enemy—the benefit to be derived from this being that the *Mus decumanus* is not liable to contract plague, while the *Mus rattus* is very susceptible to the disease and

is the species to which the transmission of plague can be almost entirely ascribed—the plan seems impracticable, because the two species interbreed and the offspring readily contract plague.

The introduction of plague in the open ports must increase in the proportion that international commerce increases, and, unfortunately, wherever man fixes his abode the rat usually follows him.

The best hope of successfully dealing with plague seems to lie in the calling of an international congress, in which the delegates could pledge substantial financial support for the purpose of combating plague in its great epidemic centres, Southern China and India. In other words, a great international sanitary army should go forth to fight plague in those countries, and if once eliminated there the disease could be readily stamped out in the remainder of the world, and then plague would disappear from the face of the earth.

Doctor Kitasato stated he hoped that President Roosevelt would take the initiative in this matter and call an international sanitary congress to put into operation the plan which he suggested.

RESEARCH ON THE SLEEPING SICKNESS

THE new volume of the Reports of the Thompson Yates and Johnston Laboratories of the Liverpool University (Part 2, Vol VI) is devoted to an account of the research work of Dr W H Thomas and A Breinl. They begin by giving a description of cases of sleeping sickness in man, divides the cases into two classes, *viz*, sleeping sickness and trypanosome fever, though probably cases of "trypanosome fever" are only early stages of sleeping sickness. They then made numerous experiments, which are summed up in the following conclusions—

"1 The further comparison of the trypanosomes found in (a) the cerebro-spinal fluid of Uganda sleeping sickness cases, (b) the cerebro spinal fluid and blood of the Congo Free State sleeping sickness cases, (c) the blood of Congo Free State 'Trypanosome Fever' cases, and (d) the blood of Europeans infected in the Congo confirms the previous observations that all these trypanosomes are identical in animal reactions and morphology with *Trypanosoma gambiense* (Dutton).

2 There is no acquired immunity against infection nor transmission of immunity to offspring.

3 That baboons, *Cynocephalus babuin* and *Cynocephalus sphinx*, are susceptible to infection with *T gambiense*. That usually a chronic type of the infection develops, but a fatal termination occurs.

4 That in many of the animals, especially the horse, cow, donkey, sheep, and goat, the infection is of a mild character, but their blood is still infective to susceptible animals one year after the infection. That in the case of the horse the parasites are still occasionally seen and the blood infective twenty eight months after inoculation.

5 That periodicity of the parasite is a prominent feature both in man and beast.

6 That the passing of a strain from a susceptible into a very resistant animal does not attenuate the organism.

7 That the parasites in an animal may sometimes become more virulent. The numbers increasing enormously, the subinoculated animals become more rapidly infected and death occurs. That such a strain may be particularly virulent for one species of animal. That the more rapid infection is not due to the inoculation of a greater number of parasites than usual.

8 That the parasites, after being passed through many hundreds of animals for nearly three years, still retain its morphological characters, and animals inoculated with it react as described by Dutton and Todd."

THE ANATOMY AND HISTOLOGY OF TICKS

In the new number (No 23) of *Scientific Memoirs* by officers of the Medical and Sanitary Departments of the Government of India Captain S R Christophers, I.M.S., Superintendent of the King Institute, Madras, gives a very timely and valuable account of the anatomy and histology of ticks, and shows that these little pests are by no means absent in India.

Ever since the classic work of Smith and Kilborne in 1893, on the part played by ticks in the spread of the so-called Texas fever of cattle, considerable attention has been paid to the relation of ticks to certain other diseases of cattle, dogs and man, and Captain Christophers has done good service in publishing this monograph, which puts in the hands of all interested a reliable, accurate and well-illustrated account of these animals. The remarkable fact is now well known that some species of ticks transmit the parasitic infection not directly by themselves, but through their progeny.

It has been known for some time past that ticks act as carriers of the protozoa, but only recently they have been shown to be the agents for the transmission of certain spirochaetae.

There is still some confusion in the nomenclature of this branch of the arthropoda. Braun (*Animal Parasites of Man*, Engl. ed., p 360) calls all ticks by a family name Ixodidae, and divides them into two great groups (1) Argasinae, and (2) Ixodinae. Christophers, on the other hand, calls the latter Ixodidae, and the former Argasidae.

We may follow Christophers for the present, he divides the *Argasidae* into two genera, *Argas* and *Ornithodoros*, and gives the following species: *Argas persicus* (Fischer de Waldheim, 1824), *Argas tholozani* (Laboulbène and Megnin, 1882), *Ornithodoros savignyi* (Andouin, 1827), *Ornithodoros moubata* (Murray), *Ornithodoros savignyi* var. *cæca* (Neumann). It is probable, however, writes Christophers, that *O. moubata* an African species, is identical with *O. savignyi* var. *cæca* of Neumann.

Dr. Oliver, of the South Indian Railway, was the first to bring to the notice of Captain Christophers the existence of these ticks in India, and since then specimens have been collected from many parts of the Madras Presidency, and it is probable that ticks are also to be found in many parts of India.

In another part we have given an account of the work of Dutton and Todd on Human Tick fever of the Congo, and have seen that these writers in their latest work consider that the "Tick fever" is a relapsing fever produced by a spirochaete "probably identical with the spirochaete obermeieri," long known to be the cause of ordinary relapsing fever.

In India there is no recognised disease of the nature of "Tick fever," but Major Wimberley, I.M.S., Captain Turnbull, and Lieutenant E A Walker, I.M.S., have reported in our columns cases of a "spullai" fever, which shows that it is probably that many obscure fevers in India, besides the well-known relapsing fever, may well be due to a spirochaete infection, and this is a subject which may well be commended to medical officers in charge of prisons and regiments where accurate clinical observation of cases of fever can well be carried out.

We commend Captain Christophers' most valuable monograph to the attention of our readers, and in doing so must say a word in praise of the beautiful plates and illustrations of the anatomy of the ticks which have been admirably reproduced in the offices of the Survey of India.

This series of *Scientific Memoirs* is becoming increasingly valuable, and we heartily congratulate the Sanitary Commissioner with the Government of India on the splendid series of monographs now being issued under his auspices which so ably represent and record the high class of work now being done by officers of the Medical and Sanitary Department in India.

HUMAN TICK FEVER OR RELAPSING FEVER

We have already (*I M G*, February 1906, p 64) commented upon the apparent identity of the fever recently described in the Congo Free State with the well-known fever described in Murchison's classical work on the "Continued Fevers of Great Britain," and known all over Europe and in India as Relapsing or Famine fever. We make the following extracts from an admirable article on this disease as seen in the Congo Free State by Dr J Everett Dutton and Dr J L. Todd of the Liverpool School.

These authors write "From this clinical material, from transmission experiments with ticks, and from information and reports received from residents in the Congo, we have been able to show that 'Tick fever' in the Oriental province [Congo] is a relapsing fever produced by a spirochaete, probably identical with *Spirochaete obermeieri*, and that this organism is transmitted by the bite of a tick," this tick has been identified as *Ornithodoros moubata*. Drs Dutton and Todd write as follows —

"In the more typical cases the symptoms of a disease which prostrates the patient on one day and leaves him free from fever on the next must have puzzled many, who could not suspect their specific nature, were it not that to most persons in this part of Africa every fever is malarial, and quinine is at once given. The naturally

falling temperature of relapsing fever might thus be easily made to furnish the 'therapeutic proof' of its malarial nature. Our own experience illustrates how easily mistakes might occur in diagnoses uncontrolled by the microscope, and based on only a single observation made, perhaps, between the attacks. Since we have been in the Oriental province, twenty four reputed cases of tick fever have come, or have been sent, to us. The symptoms of seven of these patients were explainable on other grounds. Six were infected with trypanosomata, one with malarial parasites. Seven of the remaining cases gave histories similar to that recorded below in Case 3, and no cause for their illness was discoverable during the one or two days that they were under our notice. In only ten did we find spirochaetes. We have in addition seven spirochaetes in two soldiers, newcomers, who had never heard of the "*Kimputu*". In all we have had under observation twelve natives infected with spirochaetes."

Strangers are very susceptible, immunity after one attack is usual, the incubation period between the bite of a tick and the declaration of the disease is from five to seven days, the symptomatology is given as follows —

"In the two European cases slight prodromata, mental heaviness, and lack of acuity were noted. In all the cases the onset of the fever has always been sudden, and in no instance preceded by a distinct rigor. The patient is prostrated, and complains chiefly of severe headache, usually frontal, occasionally general. Boneache in the limbs, and backache are distressing, the patient feels as if well beaten. There is a marked distaste for food. Vomiting generally occurs once or twice, but has never been continued. Slight diarrhoea is fairly constant, constipation may occur. The evening temperature during the attacks frequently reaches 104.5° F, the highest temperature recorded is 105.3° F. There are usually three or four attacks which often end in more or less profuse perspiration. As a rule each attack lasts for three or four days, and the intervening periods vary from five to nineteen days.

The spleen is sometimes, not always, enlarged. Herpes, epistaxis, and hiccough were complications observed. The most characteristic features of the disease have been the prostration of the patients during the attack of fever, and the quick return to comparative health with the fall of the temperature.

When the parasites are numerous they can easily be seen in fresh preparations of blood as rapidly moving spiral threads. When they are scanty perhaps the best method of demonstrating their presence is the searching, with a high power, of thick dehaemoglobinised blood-films stained by some modification of Romanowsky's method or with a weak solution of carbol fuchsin. Centrifugalizing the blood is not nearly so good for the demonstration of spirochaetes as for trypanosomes."

The following note on the bionomics of the tick is of interest —

"In infected houses the ticks are found in the dust and cracks of mudfloors, particularly in dry places near the hearth, in bed-platforms, or immediately inside the door-sill, just where the natives are accustomed to sit down. They may hide themselves in the cracks and crevices of mud or grass walls, and even in the thatched roofs.

When ticks are disturbed they often curl up their legs as if dead. So lifeless do they seem that one might easily be deceived, especially since they sometimes remain motionless for hours.

Ticks can crawl rather quickly. In sand the body of a large one leaves a smooth, central furrow, with the sharp, crab-like tracks of the claws on either side. They seem to be largely nocturnal in their habits, and certainly do not feed quickly enough to get much blood from any but a sleeping person. A big female may remain,

firmly fixed, feeding on a monkey for two or three hours before it finally drops off, as large as a cherry, distended and bloated with blood. Others may fall off and attempt to crawl away after half an hour's feeding. In feeding (Pl 3, fig 2), the tick first firmly fixes the forelegs, and then, depressing the capitulum, buries its mouth parts in the host. The bite of even a small tick is painful. In monkeys, immediately after feeding, a small crust of sero sanguinolent fluid forms at the site of the bite. Surrounding it is a roseola about two millimetres in width. Two hours later the central clot is surrounded by two concentric zones, each two millimetres in width, the first colourless, the second ecchymotic. Six hours later the clot has become almost black, and is placed at the apex of a slight, colourless weal, bordered by an ecchymotic zone about a millimetre and a half in width.

It has been said that ticks bite most frequently between the toes, in the axilla, etc. Our experience indicates that they bite, indifferently, every part of the body."

From the facts here presented we conclude that —

(1) Tick fever is clinically identical with relapsing fever, and has for pathogenic agent a spirochaete.

(2) The spirochaete is probably *Spirochaete obermayeri*.

(3) The tick, *Ornithodoros moubata*, can transmit the spirochaete from animal to animal.

(4) The transmission is not merely mechanical, but some developmental process is carried on in the tick.

(5) A considerable degree of immunity or tolerance to the spirochaete can probably be acquired.

This article is well illustrated by charts and notes of cases, both in Europeans and natives, and maps of the distribution of this disease and the tick in Central Africa. Mr R Newstead also gives a complete account of the external anatomy of the *Ornithodoros moubata* which is beautifully illustrated. Since the above was written, we have received the excellent monograph of Captain S R Christophers, I.M.S., on the *Anatomy and Histology of Ticks*, which we notice elsewhere.

THE INDIAN MEDICAL SERVICE

THE Editor of the *Journal of Tropical Medicine* in the issue of 1st May comments on our article (April) in which we had much to say in reply to his attempt to depreciate the Indian Medical Service, he seems to think that the article in question is an echo of the opinion of the holders of certain appointments in Calcutta, it will suffice to say that as it happens the article was not written by the Editor nor by any of the "knot of men who, whether by good luck or good management, occupy desirable appointments in the second city of the Empire" (as our London contemporary politely puts it). The writer was a mofussil Civil Surgeon, in a second class station, an officer who never has held and possibly never will hold any of the prize appointments of the service, in short an officer typical of the rank and file of

the service whose lot is cast up-country As regards our London contemporary's attempt to "damn" the service we need only say "*non tali auxilio nec defensoribus istis tempus eget*"

DOCTOR AND PATIENT

THE Government of India have recently had under their consideration the question of the obligation of a medical officer of Government to supply, on a demand made by the patient's official superior, information regarding the nature of the illness of a Government servant whom he is attending in his official capacity. After a full consideration of the matter they have arrived at the conclusion that when the particulars of a Government servant's illness are required in the interests of Government by his official superiors, the Government medical officer who has dealt with his case in his official capacity may be required to supply them without infringing the relations which ordinarily obtain between a patient and his medical adviser. They are, however, impressed with the objections to confidential communications between the official superior and the medical adviser of a subordinate, and, since the information in question must almost invariably be required in connection with the grant of leave, they think it advisable that it should ordinarily be demanded, if at all, from the subordinate himself, who can obtain it from his medical attendant in the way in which the somewhat analogous statements required to support an application for leave on medical certificate are obtained. Any cases of the kind which may in future arise should be dealt with in the manner suggested above. We think that it will be agreed that the above is a very fair and satisfactory solution of a difficult matter.

IN the second number (April 1906) of the *Journal of Tropical Veterinary Science* Capt J D E Holmes, ICVD, marshals together a lot of instances and arguments to show that the evidence on outbreaks of this trypanosome disease is against the theory of direct transmission by means of flies from animal to animal.

THE following extract is of interest (*Med T and G*) —

"In the last few numbers of the *Sei I-kwa Medical Journal* (Vol xxiv, Nos 10 and 12, Vol xxv, No 1) Professor Okada and Dr Saito have published an account of an elaborate research which they have made into the etiology of scurvy. The main conclusion at which they arrive is that a micrococcus can be isolated from the blood of scorbutic patients, and this they believe to be the actual cause of the disease. In support of their belief they state (1) that the organism is readily agglutinated by the serum of patients suffering from scurvy, and even in dilutions of one hundred or more, (2) that the organism is pathogenic to animals, and produces in them symptoms somewhat resembling those of scurvy, namely, hemorrhages in lungs and kidneys, loss of weight, hemorrhage into muscles and general edema. They have, moreover, in all fatal cases been able to obtain the cocci again from the heart blood

of the inoculated animals. The cocci have been cultivated in most ordinary media, and both their cultural characteristics and their resisting power to heat and antiseptics have been worked out."

DEATH OF COLONEL BOYD, I M S

WE take the following from *The Indian Daily Telegraph* —

"The death occurred in Bombay on July 16th, from cholera, of Colonel Boyd, I M S. Colonel Boyd was for many years principal Physician of St George's Hospital, Bombay, and was one of the best known members of the medical service. The latter part of his service was spent as Civil Surgeon of Rajkote, an appointment which he only relinquished a fortnight ago, on his retirement. Colonel Boyd was making a short stay in Bombay before leaving India finally, and his sudden death is thus all the more deplorable. The deceased was a keen sportsman, and was for several years Commodore of the Royal Bombay Yacht Club."

A NEW edition of a list of qualified medical practitioners in Bengal (1906) has just appeared from the office of the Inspector-General of Civil Hospitals. This is a very useful publication, and we are glad to see that it is hoped to publish it annually.

VOLUME VII, Part 1 of the Thompson Yates and Johnston Laboratories (1906), contains several articles of interest. Lieut S R Christophers, I M S, and Mr R Newstead have a note on a new pathogenic louse which acts on the intermediary host of a new hæmopigaine in the blood of the Indian Field Rat (*Gerbillus Indicus*).

DR J W W Stephens gives a new description of the fluke now called *Gastrodiscus hominis*, first described by T Lewis and J F McConnell at the Calcutta Medical College in 1876, under the name of *amphistoma hominis*. Dr Stephens' description confirms and amplifies the former description. Dr Karl Jordan and the Hon N C Rothschild contribute a very valuable and highly technical monograph article on a revision of the Sarcopsyllidæ, to which the flea known as *Jigger* or *Chigoe* belongs. Dr J E S Moore and Mr C Z Walker have an article on the malaric process in Mammalia.

MR R E MONTGOMERY, ICVD, continues (*Journal of Tropical Veterinary Science*, No 2, p 138, etc.) his researches into the prevalence of bilharziosis among animals in India and has drawn the following conclusions —

1. Bilharziosis is an established disease amongst the domestic animals of Northern India, the exact percentage of affected animals and the pathological states induced remaining to be ascertained.

2. Parasites have been obtained from the horse, donkey, cattle and sheep.

3 The human parasite can live in this country, at least two authentic cases in natives who have never left India have been chronicled, one of these patients was a groom, and at Muktesar 78.9 per cent of ponies were infested.

4 India is evidently suited to the propagation of the Bilharzia parasite and a very great number of human cases of the disease were introduced from South Africa.

5 Granted the specificity of the three species I have described being admitted, the genus *Schistosomum* contains six species, of which five have been discovered in indigenous mammals of India.

6 The sixth (*Sch. japonicum* vel *Cattoi*) has up to the present only been described in the East, being discovered successively in Japan, Malay Peninsula, and Manila. India is consequently threatened.

Mr Montgomery's article concludes with a very complete bibliography running to some 20 pages.

The same issue of this new Journal has an admirable article by Dr A. Lingard on the ocular filariæ of horses and cattle. Capt F. Percival Mackie, F.R.C.S., I.M.S., contributed to the same Journal a very interesting case of intraocular infection of tetanus in a foal.

Reviews.

Indian Toxicology—By Captain F. N. WINDSOR, I.M.S. Calcutta, Thacker, Spink & Co. Price Rs 3.

THIS little book is the first to come before us of a series of monographs on various subjects, written by officers of the Indian Medical Service and published by Messrs Thacker, Spink & Co. Indian Toxicology is the name of the little book written by Captain F. N. Windsor, I.M.S., Chemical Analyst to the Government of Burma. It describes fully and clearly all the ordinary poisons used in India, omitting a few rare toxicological curiosities. The book should be of the greatest use to medical men and students in India, and we hope to see it introduced into every Government Hospital and dispensary in India.

Text-Book of Anatomy—By D. J. CUNNINGHAM. Second and Revised Edition, 1906. Young J. Pentland.

IT is not quite four years since Cunningham's Anatomy first appeared and leaped at once into the most prominent place as the text-book *par excellence*. Now appears a new and thoroughly revised edition, with a large number of new illustrations, most of them coloured.

The list of coadjutors who have written parts of this book show how representative it is of the British schools of anatomy.

The chief changes will be seen in the sections on embryology, joints, muscles, brain and cord, and in the excellent practical chapter on applied anatomy.

Altogether it is a magnificent book, strongly to be recommended and likely to keep the place

it so rapidly won as the favourite anatomy of the medical student. A word of praise is due to the publishers. It is admirably printed in good type and on thin paper, so that although of over 1,300 pages it is not too bulky.

Green's Encyclopedia and Dictionary of Medicine and Surgery—Vol. I A B W. M. GREEN & SONS, Edinburgh and London.

THIS promises to be a work of exceptional value and interest. In it an attempt has been made and as far as the first volume shows successfully made to combine the advantages of an Encyclopedia of Medicine and Medical Dictionary. The ready acceptance of the Encyclopedia Medica published by the same firm showed that such a work was found useful. The present volume is more comprehensive and includes not only a lexicography, but a series of articles written by leading medical men on every possible subject in medicine and surgery. Many subjects too are treated, which it is difficult to find in any ordinary text-book, for example, blindness, balneology or alcoholism. We foresee a career of usefulness for the new venture. The book is well got up, clearly printed, and forms a handsome volume.

Monro's Manual of Medicine—Second Edition, 1906. London. Baillière, Tindall & Cox (University Series). Price 15s. Demy 8vo, pp. xx and 1023. Illustrated.

WE gave a hearty welcome to the first edition of this excellent manual of medicine, and the rapid demand for a new edition shows that we were not alone in our opinion of the many merits of the book.

Advantage has been taken of a new edition to not only revise it thoroughly, but to give an account of such recent advances in tropical medicine as trypanosomiasis, piropasmosis and tropical enlargement of the spleen. It is a complete practical guide for the student and young practitioner. The price is low, the book is well turned out, handy in size, and indeed we know of no more suitable volume to put in the hands of medical students in our Indian medical schools and colleges.

A Text-Book of Psychiatry for Physicians and Students—By LEONARDO BIANCHI, M.D. Authorized translation from the Italian. By JAMES H. MACDONALD, M.B., Ch.B. (Glas). Publishers Baillière, Tindall & Cox, London.

"FEW men can speak with greater authority or draw from a wider experience than Professor Bianchi, who as Minister of Public Instruction in Italy is now entrusted with the educational affairs of his country," says the translator in his preface. He might have continued that to these attributes is added an attractive style, which makes the book pleasant reading.

The book is a large one of 900 pages with 105 illustrations. It is divided into three parts. The first deals exhaustively with the anatomy

histology and physiology of the brain, particular attention being paid to the centres and associative paths involved in the production of speech.

The second part is psychological and in it is considered the physio-pathology of perception, attention, memory, ideation, the emotions and sentiments, the will and consciousness.

The third and largest part is devoted to mental affections. There is a chapter of great interest on the methods and field of clinical enquiry. The degenerative anthropological signs are fully dealt with, and of these the author says, "an individual cannot be regarded as a degenerate, unless he bears many degenerative signs, from the sum total of which he appears manifestly to be an inferior and anomalous type," and again, "Anything in the configuration of the individual that constitutes a deviation from the mean type of the race, that exhibits characteristics of inferior races or even of higher animals, or produces irregularities or asymmetries, may be considered as a characteristic of degeneration."

The rest of the book is devoted to the consideration of mental diseases. These are classified under 3 groups. "The first comprises the affections represented essentially by an evolutionary psycho-cerebral defect, a second group comprises all the mental affections of infective, auto-toxic, and toxic origin developing in individuals regularly evolved, in the third group are included all the affections with an organic substratum, localized or diffuse, in the central organ of mind. These chapters are full of information and anecdote and are eminently readable. It is impossible to give a full review of a book of this size, and all that can be done is to touch on points of interest. Professor Bianchi considers that latency of criminality exists in the majority of men in the period of youth that criminals are almost all hypoalgesic, and that the bulk of female delinquency is manifested in prostitution, though the born prostitute is very rare, the bulk being made so by poverty or as the result of seduction, we cannot however agree with him in his belief that delinquency is likely to be lessened by "a better education favouring the development of the collective consciousness, which is becoming substituted for the religious consciousness, every day becoming weaker and less efficacious."

In the consideration of epileptic insanity the author brings the psychic phenomena into line with the motor by imagining high tensions which discharge themselves under inadequate and disproportionate stimuli, by the primitive motor paths and by the simpler motor co-ordinations, e.g., those expressing anger.

The chapter on fixed ideas and obsessions is very interesting, but, so far as the essential psychological change originating them is concerned, not convincing. The writer considers the will not to be defective in these cases, basing his opinion on the very strenuous efforts which the sufferers make in the desire to set themselves free from

their tortures—yet later on he writes "I have never seen a subject suffering from obsession, who was not uncertain and hesitating in most of the acts of his life." It is not reasonable to conclude that great will effort is an indication of great will power, rather the reverse, and the hesitating character of these unfortunates points to weak will power.

Bianchi dissents from Kraepelin's views, which would include under one denomination melancholia, mania and the periodic and circular forms of these psychoses, but basing his views on long and close observation of patients for decennaries on end, he concludes that there are certainly small groups of pure forms of these psychoses, and larger ones of the periodic forms of the same nature. A chapter is devoted to "sensory insanity," under which name is included all those psychiatric states which begin with hallucinations and illusions, and which include acute dementia, dementia præcox, katalonia, stupor and mental confusion. The toxic insanities, including pellagrous, alcoholic, morphinic, cocaine, chloralic and saturnine, are considered in his usual lucid style, though in the case of the narcotics he does not particularly emphasize the great difficulty in treatment resulting from the weakness of will which indulgence in these drugs produces. He finds that under proper conditions of treatment the prognosis is good.

The space devoted to the third great group of mental affections is largely taken up with the consideration of dementia paralytica. Owing to the serious financial difficulties in which paralytics land themselves and their families, Professor Bianchi gives in full detail the different modes of onset of the disease. He writes, too, very fully on the treatment—mercury, he considers useless, but from iodide of potash has obtained a significant and prolonged amelioration.

The book is an exhaustive and interesting manual on the present conception of psychology and psychiatry.

Gynæcological Diagnosis.—A Manual for Students and Practitioners. By ARTHUR E. GILES, M.D., B.Sc. (Lond.), F.R.C.S. (Ed.), M.R.C.P. (Lond.), Gynæcologist to the Tottenham Hospital, Surgeon to Out-Patients, Chelsea Hospital for Women, London. Bailière, Tindall & Cox, 1906. Demy 8vo, pp. x+212. Illustrations 35. Price 7/6 net.

THIS work, which has been written especially for students and practitioners, will supply a long-felt want for some concise and clear guide to the diagnosis of gynæcological cases. The first part of the book deals with general considerations and opens with short chapters on case-taking, methods of examination and the use of instruments in diagnosis. The author very rightly points out that the gynæcological position, i.e., the patient lying on her back with knees separated, the buttocks brought to the end of the couch, and the feet supported on foot rests, is the best position in which to

examine any gynaecological case. We are convinced that those who have tried this method will rarely resort to any other, as the whole of the pelvic contents can be mapped out with far more clearness in this than in any other position. There is a very good paragraph on the use and abuse of the uterine sound an instrument which is far too often used quite unnecessarily. There is a good chapter on the significance of symptoms, the chief gynaecological symptoms being taken in turn and their diagnostic value clearly pointed out. This is followed by two chapters on the interpretation of the physical signs detected in the course of routine examination. The second part of the book is taken up by twelve chapters dealing with the diagnosis of individual cases. Each chapter treats of some particular leading symptom, *e.g.*, hæmorrhage, discharge, &c, and points out the various morbid conditions in which this occurs as the leading symptom, with the differential diagnosis between these various conditions. The book is written throughout in a clear and concise manner, and can be cordially recommended to all students and practitioners, as likely to be of the greatest help in arriving at the correct diagnosis of any ordinary gynaecological case. The printing, paper, and general get up of the volume are excellent.

A Text-Book of Practical Therapeutics.—

By HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special Chapters by Drs G. E. de SCHWEINITZ, EDWARD MARTIN and BARTON G. HIRST. New (Tenth) Edition, thoroughly revised and greatly rewritten, 8vo, pp 908. Engravings 113, coloured plates 4. Price 21s net. London: Henry Kimpton, 1905.

THE fact that this book has passed through ten editions in the course of fourteen years is a clear proof that it has met with a favourable reception from the profession. The author states that he believes that most text-books on the subject treat of it as if the student were already a skilled physician or experimental pharmacologist, and this unquestionably is the case, in the majority of instances. This edition has been brought up to date in line with the new United States Pharmacopœia of 1905, but the preparations of the B. P. have also been introduced. The first part of the work deals with general therapeutics, and includes the modes of action and administration of drugs, dosage, absorption, duration of action and combination of drugs for joint effect, idiosyncrasy, incompatibility, &c, concluding with a short chapter on prescription writing. In the second part the various drugs are dealt with separately, the general therapeutic, physiological action and preparations being treated of in a full, clear and interesting manner. The third part of the work is devoted to the consideration of remedial measures other than drugs, such as acupuncture, cold, anti-toxins, counter-

irritation, inhalation, climate, transfusion, &c, ending with a brief article on the feeding of the sick. In the section on Cold, there is an excellent description of the Bland Bath, which is probably more extensively used in America than in England in the treatment of enteric fever. The fourth part, dealing with applied therapeutics, considers most of the more common diseases in turn, and gives the best methods of treatment in the various stages of each, explaining briefly how and why the various drugs are given, the whole concluding with a list of the doses of medicines.

This book can be cordially recommended as likely to prove most useful to all medical practitioners, and it undoubtedly supplies a long-felt want in medical literature. In a work of this kind, there is, no doubt, room for criticism as to the treatment recommended for various diseases, but though exception may be taken to some methods advised, on the whole they will be found sound, reliable and practical.

In the copy sent for review, we have noted what must be a careless mistake in printing, *viz.*, that pages 226 and 227 are replaced by pp 322 and 323, and pp 230 and 231 by pp 326 and 327, also pp 234 and 235 by pp 330 and 331, and pp 238 and 239 by pp 334 and 335, these latter pages appearing again later on in the work. The former pages seem to have been omitted entirely from the book.

A Manual of Diseases of the Eye.—By CHARLES H. MAY, M.D., New York, and CLAUD WORTH, F.R.C.S., London. London: Baillière, Tindall & Cox, 1906. Pp viii and 400, 335 illustrations and 20 coloured plates. Price 10s 6d net.

THIS is an enlarged and improved edition of May's Manual which has gone through four editions since 1900, and Dr May has had the assistance of Mr Worth in this English edition. The book is what it claims to be—a concise, practical and systematic Manual of Diseases of the Eye intended for the student and general practitioner of medicine.

The text is good and up to date and the book is not overburdened with a number of fantastic operations on the lids as so many text-books are. In cataract extraction preference is given to simple extraction (without iridectomy) in ordinary cases. Extraction in the capsule is either unknown, or does not appeal, to the authors as no mention is made of it. The chief feature of the work is the large number of excellent and original illustrations provided, many of them evidently photographs reproduced and therefore natural. As might be expected in a manual hailing from the States the chapters on errors of refraction and anomalies of the ocular muscles are very good. The three chapters on comitant squint, heterophoria and the advancement operation are brief abstracts from the third edition of Mr Worth's book on squint. He apparently approves of the American custom of at

once collecting almost the total hypermetropia in convergent squint as opposed to the British practice of correcting it more gradually. The coloured plates on external diseases of the eye are excellent and most useful to the student. Those on fundus appearances in health and disease are good too, though not as good. The book can be recommended as sound in principle and practice and of much use to the general student.

Atlas and Epitome of Operative Ophthalmology.—By Professor O. HAAB of Zurich. Translation edited by G. E. de SCHWEINITZ, A.M., M.D., of Philadelphia. With 30 coloured lithographic plates and 134 text-cuts. Philadelphia, New York and London: W. B. Saunders & Co., 1905.

THIS is one of the best of the series of Hand Atlases published by Saunders & Co., and both in text and plates maintains the high standard set by its predecessors. The operations described are selected and do not include all known eye operations. But the selection is practical, and all ordinary operations are fully given. General considerations occupy the first 80 pages and deal thoroughly with the questions of wards, theatres, anaesthesia, sterilisation, &c., bandaging, salivary infection (mouth bandage worn always during operations), disinfection and instruments.

Operations on the globe follow, and cataract fills most of the book, iridectomy, sclerotomy, and various other smaller operations being described next. Operations on the ocular muscles are given in considerable detail. Enucleation and its substitutes (evisceration, opticociliary neurectomy, etc.), are next dealt with, and a good account of Kriegen's operation repays reading. Operations on the lids and conjunctiva and on the lachrymal organs finish the book. The success of this hand atlas is assured, as it is thoroughly practical and full of sound teaching, and it forms a most useful guide to all the operations in ophthalmic surgery usually met with.

A Manual of the Diseases of Infants and Children.—By JOHN RUHRAH, M.D. (BALTIMORE). Illustrated. Philadelphia and London: W. B. Saunders & Co., 1905, pp. 404.

THE excuse for this work being written is given by the author in his preface. The medical student in his third and fourth sessions has to familiarise himself with about fifteen different branches through the medium of say 15,000 pages of text-books. To enable him to grasp quickly the more important parts of the subject of pediatrics and to furnish him with a rapid reference book for clinical use, were the objects of Dr. Ruhrah in writing the book. The latter is likely to be the more useful, as most students prefer—and rightly we think—to work up their own note-books from the bigger text-books. The very making of such a précis is an

education in itself not to be despised. When consulted it constantly recalls the more comprehensive treatment of the subject from which it was obtained. Taking the work as a rapid reference book for clinical use it has some advantages, and may be recommended to those who are 'cleaving' in the medical wards. The section on infant-feeding is the most complete and is full of useful information.

Messrs W. B. Saunders & Co. have got up the book very well. The paper is shiny but otherwise good and well printed, and the binding is in soft leather.

A Text-Book of Physiology for Medical Students and Physicians.—By WILLIAM H. HOWELL, Ph.D., M.D., LL.D., Professor of Physiology in The Johns Hopkins University, Baltimore. Illustrated. Pages 903. Publishers Messrs W. B. Saunders & Co., London, 1905.

AFTER a most careful perusal of this new text-book of physiology, we have not the slightest hesitation in saying that it is one of the best of the numerous text-books to be had on the subject. Outside its value as a work on physiology, it is beautifully written in the charming language and style of a master of English. We can safely say, that, not for a long time has the reading of a text-book given us the same amount of pleasure. The number of works on the different medical subjects of which this sort of criticism can be made are all too few. Foster's physiology, Osler's medicine, and this new book by Howell are, in our opinion, types of the very best in medical literature.

This is the sort of book one can take up and read for the mere pleasure of the reading. Physiology, perhaps, of all medical subjects, lends itself best to the language of the orator and the simple words of good literary methods. The mystery of life, the ultimate object of physiology, the vital phenomena of protoplasm, etc., are more capable of being treated in the language of the classics than the dry record of strength, dosage, preparation of say pulv. opii or the details of the anatomy of the knee-joint.

The author has kept in mind two guiding principles in the preparation of his book, first, the importance of simplicity and lucidity in the presentation of facts and theories, and second, the need of a judicious limitation of the material selected. No one could read the book and not feel that regarding both of these principles the author has succeeded to a remarkable degree. Nothing could be better, nothing clearer than the simple language in which the story is told. We hold that it is a matter of great importance for the student, in these days of cramming, that this simplicity of language and lucidity of presentation of the principles of the different subjects should be cultivated to as great a degree as possible by those who propose to teach, be they professors or authors. One has only to look

back on one's own student days to discover those teachers who were a success. What subject did we turn to with a feeling of pleasure or take up when the brain grew weary with the dry details of facts as usually served up to the tired mind? Was it not the teacher who was able to make his subject interesting clothed in simple words, or the book that appealed to us by its simplicity and charm perhaps outside its intrinsic merits as a record of the dry bones of the subject.

This new text-book is divided into nine sections with an appendix. The different sections deal more or less with the usual divisions of the subject, and we do not propose to follow them in detail. Section II gives an account of the physiology of the spinal cord and central nervous system and is, perhaps, the best of the nine. This difficult subject is presented in a manner which, for clearness and judicious selection of material from an immense mass of facts, could not be excelled.

The book incorporates in the different sections all the latest discoveries and recent work done on the brain, digestive system and reproduction, so that it is well abreast of the times.

We cannot recommend this new text-book too strongly to students and physicians. It is a splendid work on a subject where good text-books are not scarce, and, in addition, it has the power, and its author the gift, of making the subject not only interesting and profitable, but also a joy and pleasure to read on its literary merits alone.

As we should have expected, the publishers, Messrs W B Saunders & Co., have spared neither trouble nor expense in the production, and the appearance of the volume is well in accord with the high merit of the text.

Lectures on Auto-Intoxication in Disease or Self-poisoning of the Individual.—By CH Bouchard, Professor of Pathology and Therapeutics, Member of the Academy of Medicine, and Physician to the Hospitals, Paris. Translated with a Preface and new chapters added by THOS OLIVER, M A, M D, F R C P, Professor of Physiology, University of Durham, Physician to the Royal Infirmary, &c. Second Edition, revised. Pages 342. Publishers, F A Davis & Co., Philadelphia 1906.

PROFESSOR OLIVER in the production of this revised translation of Professor Bouchard's "Lectures on Auto-Intoxication in Disease" has performed a most useful and beneficial service to the profession. It was hoped for some time that Professor Bouchard would publish a new edition of his work, but the demands on his time have been too great to permit him to rewrite or revise his original lectures at present.

Professor Oliver, in giving to the profession a new edition of this work, has endeavoured to bring the subject of auto-toxis up to date and abreast with the results of the latest discoveries of physiological and pathological science. Auto-intoxication is a subject that is of every-day

interest to the medical practitioner, and is becoming of greater importance as the knowledge of bacteria and their products is extended. Putrefactive processes in the intestinal canal and the development of physiological and pathological alkaloids play an important part in many diseased processes until lately unknown or misunderstood. Chemical investigation has shown that disease depends on the absorption of putrefactive and fermentation products rather than on the direct action of the microbes themselves on the tissues.

The book consists of a series of thirty-two lectures, with an appendix by Professor Oliver containing two chapters dealing with the natural defences of the body against disease and auto-intoxication of intestinal origin. Professor Bouchard gives six lectures on the "toxicity of the urine" in which he is perhaps, at his best. He goes very fully into the several elements of toxicity in the urine, giving a list of seven distinct substances that cause symptoms of poisoning. The views put forward, the methods employed, and the results obtained by Professor Bouchard on this subject have been very severely criticised by Dr Herringham, who does not consider that the injection of the constituents of urine separately into the blood-vessels of animals is a proper method, since it alters the relationship of the various substances of the urine that contribute to its toxicity. However, Herringham after repeating many of Bouchard's experiments, arrives at the same conclusion as Bouchard, viz., that the principal toxic substances in urine are the salts of potassium. Urinary toxicity, according to Herringham, is nothing else than "an inexact expression of the excretion of potash."

Five most interesting lectures deal with the pathogenesis of uræmia with a discussion of the different theories of its causation. A series of four lectures are given on auto-intoxication from the stomach and intestines, four deal with typhoid, two with the auto-intoxication of bile, two with the cholera and lecture XXXII gives a general recapitulation of the whole subject of auto-toxis.

In these lectures Bouchard's main contention is that the human body forms poisons which, but for the watchful activity of the eliminating organs, especially the kidney would injuriously react on the body and endanger life. He says "The healthy man is both a receptacle and a laboratory of poisons. He receives them in his food, he creates them by dissimulation and he forms them in his secretions. The human body is the theatre of the toxic elaborations carried on by the normal microbes which constantly inhabit the alimentary canal and yet man is not poisoned. He is defended in various ways against self-poisoning." But although Bouchard discusses the subject of the entrance of poisons *ab extra*, he does not deal at any great length with the question of how the body protects

itself against the invasion of microbes Professor Oliver in the two chapters of the appendix gives a short summary of the work done by the new school of pathologists which has arisen since Bouchard's book was first published These later workers have not only indicated how auto-intoxication may be prevented by the activity of the healthy (emunctories), but have also shown how the body itself may be protected against disease by the operation of certain chemical and bio-chemical processes

These lectures and additions by Oliver are of the very greatest interest and importance We can thoroughly recommend the book to all practising physicians as most instructive and profitable reading

Abdominal Operations—By B G A MOYNIHAN, M S, LONDON, F R C S, England Fully illustrated London and Philadelphia W B Saunders & Co, 1905, p 694 Price 28s net

THE different methods of operative procedure which have either been suggested or practised within the limits of the abdominal cavity are extremely numerous and varied so that one has much difficulty in deciding which is the best Mr Moynihan here describes practically only the methods which he himself uses and as he has had a large experience in this particular branch of surgery, the book is correspondingly valuable

In his preface Mr Moynihan defeats the critic by pointing out that comment will certainly be made upon the fact that there is little or no reference to the many artificial aids which at one time or another have been used in performing intestinal anastomosis, he believes that they have served their purpose and their interest is now mainly historical This may be so to a surgeon of Mr Moynihan's experience but to take only one example Murphy's button is still being largely used by a number of surgeons and will probably continue to be employed for some considerable time to come

The extent of the book is limited to those operations which are performed equally in the two sexes, and the kidney and bladder operations are also excluded

The contents are divided into five sections, the first deals with general considerations, There is an interesting chapter on the bacteriology of the stomach and intestines and it is shown how before operating upon the upper part of the intestinal tract the contents may be made practically sterile As regards technique gloves are always worn, catgut sterilised by the ammonium sulphate method or when a stronger material is required Pagenstecher's celluloid thread is employed and all instrument trays, &c, are boiled Swabs are used instead of marine sponges

The second section includes operations upon the stomach Gastroenterostomy is very clearly and ably described, the posterior operation is practically always employed and union of the

two organs is effected by a continuous suture of all the coats of the bowel and a continuous setous stitch externally, in fact, this method is always employed for the union of two portions of bowel whether end to end, lateral anastomosis, &c

The third section comprises operations upon the intestines In cases of obstruction the author has invented a method of emptying the contents of the bowel by means of a glass tube with a rubber tube attached which is distinctly superior to the ordinary method of puncture or the use of a trocar or cannula The intestine is incised, the glass tube introduced and with the emptying of one loop, this loop is carefully pulled on to the glass tube so that the distended coil above can be emptied and so on

This section is the longest in the book and is extremely good, but there is a constant repetition and insistence on the method of suturing preferred which is somewhat wearisome

The fourth section deals with the liver, the various operations are well described, but the chapter on abscess of the liver is rather disappointing, consisting mainly of extracts from Manson's and Cantlie's writings, however the author can scarcely be expected to have the experience in this operation acquired by the majority of men practising in the Tropics

The last section includes the operations performed on the pancreas and spleen, it is excellent, but we must take exception to one statement which is that "spontaneous" rupture of an enlarged spleen is not infrequent in the tropics, rupture of an enlarged spleen from slight violence is undoubtedly common but true spontaneous rupture is rare

In conclusion the book is well written, the accounts of the operations being very clear and concise and the printing and illustrations are up to the high excellence which we have come to expect from Messrs Saunders & Co's publications

Current Literature.

SPECIAL SENSES

The Operation for Cataract—Dr F E Cheney, of Boston, read a paper on this subject before the New England Ophthalmological Society in February 1906, which is reproduced in the *Boston Medical and Surgical Journal* of April 3, 1906, and which emphasises a few practical points as the result of 20 years' operating While preferring thoroughly mature cataracts for operation Dr Cheney does not hesitate to remove lenses in which there is still some transparency if the sight in the other eye is insufficient for the patient to read or get about or pursue his usual occupation A long discussion by American Surgeons on this point was epitomised in this *Gazette* in Jan 1906 The author rightly objects to visual statistics being considered in deciding for or against operation He says the fact that an iris is discoloured or tremulous, that there are numerous posterior synechic opacities of the cornea or even faulty projection should not prevent one from operating if the patient is blind and there is a chance of improving

his condition. It is mainly to the presence among our patients in fair numbers of such cases that the visual results published in India are worse than in Europe. Dr Cheney very truly says 'Temperament is a factor that must always be reckoned with in considering the results of a cataract operation. The patient with 20-200th is often the contented grateful patient, and the with one 20-20th vision is often the chronic grumbler. It is pointed out that as regards antiseptics, &c, the ophthalmic surgeon labours under decided disadvantages. Antisepsis in fact is impossible in the eye, asepsis almost equally so. The most we may hope for is that the number of micro organisms in the conjunctival sac may be reduced in number or have their activity lessened. The author has tried and found useful, in this direction, instillations of 25 p.c. solution of argyrol three times daily for three days before extraction and often daily dressings following. It does not render the sac sterile but such eyes have been exceptionally free from infection and discharge. Gowns are worn by the operator assistant and nurse, also caps, and gauze masks covering the nose and mouth. Some experiments by Levings of Milwaukee are quoted proving the value of the mask. A culture plate exposed for two minutes just in front of the mouth during ordinary conversation showed 235 colonies, for one minute at four feet during forced expiration 105 colonies, at 20 feet after ten forcible coughs 23 colonies. A plate exposed in the same room with the air quiet showed only three colonies. When plates were exposed in a similar way and gauze masks worn the number of colonies was reduced, the reduction being in direct proportion to the number of thicknesses of gauze used. Three thicknesses reduced the number of colonies to almost the number found on the plate exposed in the quiet air of the room. Holocain (1%) has been used by the author for some years instead of cocaine as there is less smarting as its effects wear off. Irrigation has never appealed to him because cortex he considers rarely interferes with a good recovery and its use means the introduction of one more instrument into the wound.

Scopalamine and Morphine Anæsthesia in Ophthalmic Surgery. Professor Suker, of Chicago, has a good paper on this subject in *Medicine*, which is reproduced in *The Annals of Ophthalmology* for January, 1906.

The solution should be fresh and the salt be the hydropromate of scopalamine (not of hyoscine). One-fiftieth of a grain of it and a half a grain of sulphate of morphia are dissolved in three drachms of distilled water. The patient having been as carefully prepared as if for a general anæsthetic one Pravaz syringe of this mixture is injected into the arm two and a half hours prior to the specified time for operation, the second syringe is given an hour later, and the third half an hour before operation. The patient is drowsy within an hour and a half of the first injection and should be kept quiet and placed on the table before the third injection is given. If required narcosis can be prolonged by very slight chloroform inhalations. If cocaine is used locally two injections are usually enough to allow painful glaucomatous eyeballs to be operated upon. The patient tho' apparently comatose is able to turn the eyeball in any direction required. Experience has shown the method safe in patients with albuminuria and valvular heart disease to whom chloroform could not be given. The patient seldom if ever vomits and remains perfectly quiet for 15 to 24 hours after operation. Deaths have been reported but in all rather large quantities of chloroform had been given as well. Some patients have an idiosyncrasy for scopalamine, as they have for atropin, but in such cases no harm is done as not more than one injection would be given and that contains but the physiological dose of each, $\frac{1}{10}$ and $\frac{1}{2}$ grain respectively.

F P M

Correspondence

A MANUAL FOR JUNIOR I M S OFFICERS WANTED

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I write to point out that Junior I M S Officers when they first come to this country have very little to help them in performing their duties. This seems the result of several causes, the instruction they receive in London is by R A M C Officers and applies of course only to British soldiers and the station hospital system, as do all the manuals written on Military Hygiene &c.

Again, the I M S Officer is usually a man alone with no one to consult in case of difficulty. The R A M C have had published a manual for the R A M C giving information on points in connection with their hospital system also their "Standing Orders" but no I M S Officer in military employ seems ever to have written the result of his experiences for the benefit of others, with the result that the newly arrived I M S Officer finds himself with a 20 page vol. VI referring him in every para to unpublished tables as his only guide. I am not saying that his duties are onerous, but I do maintain that they could often be better done and with more credit to our service if we had a little more information gained from other peoples' experience. Under the circumstances I write to propose that some experienced I M S Officer in military employ should give us the result of his experiences in a series of papers in your columns, which perhaps later might be obtained in book form.

He could without doubt give many valuable hints on such headings as the following, e.g., native lines—both infantry and cavalry system—their sanitation and hygiene, sepoy, then jats, peculiarities, foods, and habits, hospital practice the methods of getting extras for one's sick, e.g., the hospital fund, &c, the duties of the newly appointed specialists, relations of M O to C O, S M O native troops and station (see new order)—sick and insane officers, their rights to treatment in their own bungalows and to the services of nurses, hints for line of march (e.g., when cholera was prevalent, recently all water was boiled in my regiment for full strength in kerosene tins by an advance party and money obtained afterwards from Government under heading of prevention of epidemic disease), duties, in camps, on receipt of orders for action service with (a) regiment, (b) field hospital, mobilization of field hospital, e.g., where to find things in the hurry, on active service.

I have just indicated the things that come to one's mind at once. As example only of headings under which much information could be given which would I am sure be of much value to many besides.

Yours, &c,
C B,
LIEUT. I M S

THE BACILLUS LEPRÆ IN THE GNAT AND BED BUG

To The Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—You will be glad to learn that Dr W J Goodhue, Medical Superintendent of the Leper Settlement at Molokai, after several years of investigation there, has been able to demonstrate the bacillus lepræ of Hansen in the mosquito and in the bed bug.

I will quote, from Dr Goodhue's official (but as yet private) report to the Hawaiian Board of Health.

February 10th, 1906. "We have since been sectioning mosquitoes taken from various leper houses, but until last June without any apparent success. At that time it appeared that we had isolated bacilli in these series of experiments, but owing to the technique employed, it was impossible to confirm this. This method of research was abandoned. After repeated failures and the constant re-examination of fresh specimens success has come as far as demonstrating the bacillus lepræ in the female mosquito (*Culex pungens*).

February 20th, 1906. Since writing you last I have discovered the bacillus of Hansen in the bed bug (*Cimex lectularius*). I believe that the *Cimex* is more of a factor in the spread of leprosy among the natives than the gnat" (here follow reasons).

Full reports of the work with microphotographs of slides, &c, will be given publicly in May. You will kindly keep the matter confidential until the 8th of May when you will be free to use it. We should be glad to have your Journal containing notices of the discovery.

HAWAII,
9th April, 1906

Yours very truly
E S GOODHUE
Government Physician

LEISHMAN DONOVAN INFECTION IN THE U P

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In the May number of the *I M G* in a note on Leishman Donovan infection at Penang you ask "Have cases of this infection been met with in Oudh or other districts in the United Provinces?"

I have examined the blood obtained by splenic puncture from twenty cases of enlarged spleen in the United Provinces, eight from Cawnpore, and twelve from the Jhansi District, and in none of these cases have I seen the Leishman Donovan body. They appeared to be malarial. A differential leucocytic count of the peripheral blood was, however, not done in these cases.

Before the discovery of the Leishman Donovan body I had, however, seen a few cases from the Nepalese Terai and that part of the Terai which is in British Territory west of Nepal, which terminated fatally, did not show malarial parasites and had clinical resemblance to Kala Azar as now described. It is possible that the Terai District of the United Provinces may show cases of Leishman Donovan infection.

JHANSI,
June 1906

Yours, &c,
C A SPRAWSON,
CAPT, I M S

A CASE OF ANEURISM OF THE CAROTID ARTERY IN A CHILD OF TWELVE YEARS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The following case is of interest—

A Mohammedan girl of about 12 years of age was admitted into the Dufferin Hospital, Darbhanga, on the 10th October 1905, for a fusiform swelling in the right side of the neck on a level with the thyroid gland.

The mother of the girl stated that five years ago spontaneously a swelling arose in the neck. The swelling gave no trouble, and beyond rubbing with mustard oil no notice was taken, but as the swelling slowly enlarged and caused giddiness and stiffness of the neck, she brought the girl into hospital for treatment. No history of traumatism could be elicited nor were any signs of syphilis found.

The girl is about 4 feet high and is fairly well nourished, has a healthy skin and a good appetite. Digestive and other systems appeared normal.

Locally there was a fusiform swelling about the size of a hen's egg on the right side of the neck beneath the sterno-mastoid muscle, corresponding in position with the upper part of the carotid artery. It pulsated, and there was a loud bruit heard with the stethoscope at each heart systole. The temporal pulse on the same side was smaller than on the sound side.

The diagnosis being certain, the common carotid artery was exposed, and a ligature applied to it about half an inch below the swelling, and the wound closed.

The wound healed by first intention and the swelling gradually diminished in size. At the time of discharge of the patient, twenty three days after operation, it was about one third the former size, no bruit could be heard, and there was no pain or discomfort.

The unusually early age of the patient and the absence of discoverable cause make this case one worthy of record.

The notes of the case are by Miss Cardozo, Medical Officer of the Hospital at the time.

M H THORNELLY,
CAPTAIN, I M S,

15th May 1906

Officiating Civil Surgeon, Darbhanga

THE TREATMENT OF DYSENTERY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I think I have found a satisfactory and effective method of treating this disease. I have had 50 cases since the beginning of the year and only one death. This man was 70 years old, he had one tooth, a decrepit incisor had diarrhoea on admission, was always in the convalescent gang or in hospital. He came into hospital with high continuous fever, recovered from this and was doing well, passed mucus the day before his death, was entered as dysentery, died the next day. The *post mortem* showed mucus in the colon, but no ulceration. He really in my opinion, died of old age.

The treatment is simply Ipecacuanha in one grain doses every hour for 8 or 12 hours according to the severity of the disease. Should the stools become hard and blackish from bile (a common result) a dose or two of castor oil emulsion. Few cases of dysentery last longer than four or five days with this treatment. The blood nearly always disappears after the first day and the mucus on the third, fourth or fifth days. On the disappearance of the mucus, castor oil emulsion is given every three or four hours at discretion for one or more days, then soda and chiretta.

In these doses Ipecac has little or no effect in causing vomiting, in fact the utmost is a slight qualmsiness. In very severe cases I sometimes begin with two grains in each hourly pill, but do not give it more than eight times daily reducing the amount as the symptoms improve. The remedy is most prompt in younger people, in the older people (many debilitated), the case takes about five days. If the pain is very severe I give $\frac{1}{4}$ th of a grain of opium in each pill, but prefer not to give opium.

Of course, one is liable to think one's geese are swans, but still 50 cases is a good number. I have tried this method on active service in Burma, and it saved me from carrying sick men in *doolies* as they could continue marching, though taking the pills. The Assistant Surgeon at the Civil Hospital reports highly on it as does the H A at the Police Hospital. The castor oil emulsion is Major O'Kinerly's prescription.

R. OI Ricini Oil
Liq Hyd Perchlor m
Mucilag Acac Q S
Aq Cinnamon, 5i
m f mist

One teaspoonful to be taken every three or four hours. For private patients I add Tinct Card Co, 3i and OI Terebene viii to m xvi.

The soda and chiretta mixture contains 15 to 20 grains of soda, and Bismuth is sometimes added.

Of course, the stools must be seen daily to regulate the administration of the castor oil emulsion.

If you desire it I will send details of all the cases treated.

I generally begin at once with Ipecac and don't wait to use castor oil.

HAZARIBAGH,
26th May 1906

H G DYSON,
LT COL, I M S

ROUND WORMS AND APPENDICITIS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I would like to ask through the medium of your paper if the members of the profession in Assam and Bengal have come across cases of ascaris lumbricoides and appendicitis. I have, in the course of a short month, come across two such cases, which makes me think it is much more frequent than is usually thought, especially among people who live on pork and cannot afford anything but the cheaper and inferior qualities of meat. We are all aware that the diameter of the appendix is about that of a goose quill, and being a rudimentary organ, its vitality is low, so that this nematode worm in attempting to enter the appendix would be sufficient to cause blocking of the lumen, leading to the well known symptoms of appendicitis.

I think this possibility should always be considered in Bengal before we commit ourselves to operative interference.

Yours, &c,
A A FERMIE, I R C P, & S E,
Calcutta, Member, Roy Sans Inst

YAWS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In a previous number of the Gazette I submitted a century old report on yaws. In the *Medical Annual*, 1906, I find the subject discussed by Campbell Graham and Jean selme, but they have not introduced anything new, nor is their attempt to differentiate it from syphilis any better than the "old account" I sent in. I mentioned, however, that I was not aware of any micro organism being discovered yet. In the same *Annual* as above, I observe that Castellani records the finding of spirochaetes in the ulcers of yaws, indistinguishable from *Sp pallida* of syphilis. As the two diseases are different from every point of view, but have been found to co exist in the same person at the same time, it is very probable he did not recognise this fact, and that the spirochaete was due to the presence of syphilis and in no wise connected with yaws. The result might therefore be accepted as negative.

Yours, &c,
ALF MCCABE DALLAS,
DN & CH, I M, L R O P, ETO
25th May, 1906

A SPECIFIC FOR WHOOPING COUGH

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I beg to write here an accidental discovery of a specific for a disease—whooping cough—which is notoriously tedious and sometimes proves fatal when it attacks very young children, and hope they will be of interest to the profession if you kindly publish it in your magazine.

While in charge of Akola (Ahmednagar) Dispensary in 1897-98, my compounder's daughter, aged two years, and his son, aged 4 years, were suffering from whooping cough, the

attack of the daughter being the most severe. At that time small pox was prevailing to some extent in the neighbourhood. I advised the compounder to get his daughter protected against small pox. He wished to follow my advice, but his wife objected saying that the child was already exhausted from the fits of the cough and so it should not be subjected to additional sufferings likely to follow vaccination, but when the terrible severity of small pox was explained to her, she willingly got the small operation done on the child. It was about on the tenth day of whooping cough, and the child had almost no sleep owing to frequent and painful fits of the cough, and as lying down immediately produced a paroxysm of the cough, the child used by an instinct to lean on her mother's side for the whole three preceding nights. On the night of vaccination, however, she could lie down in bed during the intervals of the paroxysms. The next day the paroxysms of cough were less during the day and few in the night. The third and fourth day the fits much diminished, and by the fifth day there was no fit of the cough at all but only a small hacking cough, which also disappeared in two or three days more.

This induced the compounder to get his son vaccinated (the primary vaccination was done two years previously), and we found to our astonishment the same speedy cure following.

Later on I took every opportunity of advising the guardian, of children whomsoever I found suffering from the disease, and many of them were as speedily cured (I do not know the result of some, not having seen them again).

Some people, however, declined to do the operation through a panic which is well known to have existed at that time for the very word "inoculation," it may be of any kind.

I am not in a position to theorize on the *modus operandi* in which vaccination effects a cure in whooping cough. I must leave it to men capable of the investigation, yet beg to suggest that it may be tried in diphtheria.

Lastly, I beg to conclude with a request to all who may have the opportunity of trying it in whooping cough, that they may kindly inform me of their experience, for which I shall be highly obliged.

I beg to remain most obediently yours,

MADHAV SHANKAR,

Hospital Assistant

DHARWAR.

Service Notes.

TO BE A COMPANION OF THE ORDER OF THE INDIAN EMPIRE

Lieutenant Colonel David Prain, M.B., Indian Medical Service, Director of the Botanical Survey of India, Superintendent, Royal Botanical Gardens, and Government Quinologist, Calcutta.

TO BE KHAN SAHIB

Sheikh Ahmad, 1st Class Hospital Assistant, Indian Subordinate Medical Department, Bengal.

TO BE RAI BAHADUR

Babu Gangai Govinda Sarkar, Civil Surgeon, Jossore, Bengal.

TO BE RAO SAHIB

Prabhakar Ramkrishna Bhandarkar, B.A., L.M.S., Assistant-Surgeon of the Indore Charitable Hospital, Indore State, Central India.

HIS Excellency the Viceroy and Governor General is pleased to award the Kaiser-i-Hind Medal for Public Service in India of the Second Class to Miss Grace Mackinnon, L.R.C.P. & S. (Edin.), Lady Superintendent, Duchess of Teck Hospital, Patna City, 1st Class Military Assistant-Surgeon Robert James Owen, Indian Subordinate Medical Department, lately Assistant Surgeon at Palampur, in the Kangra District, Punjab, and to Miss Agnes Turnbull, M.D., of the Canadian Presbyterian Mission at Indore.

LIEUTENANT J. CATTO, I.M.S., Medical Officer, 16th Rajputs, is appointed to hold civil medical charge of the Manipur State, in addition to his military duties, from the 4th June 1906.

THE services of Captain H. H. G. Knapp, M.D., I.M.S., are placed temporarily at the disposal of the Government of Burma for employment in the Jail Department.

CAPTAIN W. H. DICKINSON, M.B., B.Ch., I.M.S., is appointed to act as Chemical Analyst to the Bombay Government, during the absence of Major T. D. C. Barry, I.M.S., on leave.

MAJOR E. G. R. WHITECOMBE, I.M.S., in medical charge of the 116th Mahattas Regiment stationed at Aden, to act as Civil Surgeon, Aden, in addition to his own duties, pending further orders.

CAPTAIN A. FENTON, M.D., I.M.S., made over charge of the Rangoon Central Jail to Major T. Stodart, M.B., I.M.S., on the 29th May 1906.

DR N. ANNANDALE is appointed to act as Professor of Comparative Anatomy and Zoology, Medical College Calcutta, during the absence on leave of Lieutenant-Colonel A. Alcock, I.M.S.

DR E. J. BUTLER, M.B., F.L.S., Imperial Mycologist, is granted privilege leave for three months from the 26th July 1906.

THE services of Captain C. M. Mathew, I.M.S. (Madras) are placed temporarily at the disposal of the Government of Burma.

MR J. S. LAMECH, L.R.C.P. and S. (Edin.), L.F.P. and S. (Glas.), and L.M. (Dublin), is appointed to be a 3rd grade Civil Assistant Surgeon in Burma.

ON relinquishing charge of the duties of Assistant Plague Medical Officer, Lahore, Captain H. Ainsworth, I.M.S., Civil Surgeon, second class, is appointed to officiate as Medical Advisor to the Patiala State from the forenoon of the 7th of May 1906, *vice* Major C. H. James, I.M.S., deputed to accompany Kanwar Sir Ranbir Singh, K.C.S.I., of Patiala, to Europe.

THE following exchange is sanctioned—Major G. W. Jenney, I.M.S., from 126th Baluchistan Infantry, to the 101st Grenadiers, Captain A. Spitteler, I.M.S., from the 101st Grenadiers, to 126th Baluchistan Infantry.

CAPTAIN R. P. WILSON, I.M.S., Second Surgeon, Presidency General Hospital, on leave, is appointed to be a Civil Surgeon of the second class, *vice* Captain J. G. P. Murray, I.M.S.

CAPTAIN J. G. P. MURRAY, I.M.S., Civil Surgeon, stationed at Purnea, is appointed to be Second Surgeon, Presidency General Hospital, *vice* Captain R. P. Wilson, I.M.S.

20th Deccan Horse—Lieutenant W. H. Boalch, I.M.S., to the Officiating Medical Charge *vice* Captain A. N. Fleming, I.M.S., transferred to the Civil Department, temporarily.

31st Duke of Connaught's Own Lancers—Captain D. P. Gail, I.M.S., to the Officiating Medical Charge, *vice* Captain W. H. Dickinson, I.M.S., transferred to the Civil Department, temporarily.

104th Wellesley's Rifles—Lieutenant W. E. J. Tuohy, I.M.S., to the Officiating Medical Charge, *vice* Captain J. B. Christian, I.M.S., granted leave.

124th Napier's Rifles—Lieutenant M. S. Irani, I.M.S., to the Officiating Medical Charge, *vice* Captain W. H. Cazaly, I.M.S., transferred to the Civil Department, temporarily.

THE following appointments have been made—94th Russell's Infantry—Lieutenant W. L. Meade, Double Company Officer, to the Quartermaster. Dated 30th May 1906.

109th Infantry—Lieutenant J. H. V. Bari, Double Company Officer, to be Adjutant. Dated 1st June 1906.

123rd Outram's Rifles—Lieutenant W. P. M. Sargent, Double Company Officer, to be Quartermaster. Dated 1st April 1906.

SURGEON GENERAL W. R. BROWN, C.I.E., V.H.S., Surgeon General with the Government of Madras, is granted combined privilege leave and leave on P.A. for six months, and fifteen days, from 30th April 1906, Surgeon General P. H. Benson to act.

MAJOR C. DONOVAN, I.M.S., Surgeon, Third District, Second Physician, Government General Hospital, and Professor of Physiology, Medical College, Madras, is granted combined leave on P.A. for one year and three months, and study leave for three months from January 1906.

LIEUT COLONEL W A LEF, I M S, District Medical and Sanitary Officer with Medical charge of Central Jail, Trichinopoly, is granted combined leave to Europe for 11 months and 14 days from April 1906

COLONEL W B BROWNING, C I E, I M S, Senior Medical Officer, General Hospital and Principal, Medical College, Madras, is granted combined privilege and special leave to Europe on urgent private affairs for six months from May 1906

COLONEL T J H WILKINS, Indian Medical Service, Principal Medical Officer, Burma Division, is transferred in the same capacity to the 9th (Secunderabad) Division

THE following important orders will be received with mixed feelings by I M S Officers in Military employ —

“Medical Administration—Native Army—India Army Orders Nos 231 and 338 of 1903 are cancelled and the following substituted —

With a view to increased economy and efficiency, His Excellency the Commander in Chief is pleased to direct the following modifications in the medical administration of hospitals —

1 All Medical Officers, Hospital Assistants, Ward Orderlies and hospital followers will continue regimental, as at present, and Officers Commanding units will continue in every respect to exercise absolutely the same disciplinary control as they now do, and all regimental customs as regards hospitals will continue, as heretofore

2 The Senior Indian Medical Service Officer of each station will, however, be competent to detail all Indian Medical Service Officers, Hospital Assistants, Ward Orderlies and regimental hospital establishments for any medical or sanitary duties he may consider necessary, provided this does not interfere with regimental arrangements (*i.e.*, field firing, parades, etc)

3 All hospital buildings for Native Troops, together with all their medical and surgical stores, drugs, instruments and hospital equipment, will be under the charge of the Senior Indian Medical Service Officer of the station, who will be responsible to the ^{Divisional} Brigade Principal Medical Officer for their maintenance in a thoroughly efficient condition

4 The Senior Indian Medical Service Officer of each station will, under the orders of the Officer Commanding the Station, allocate the accommodation for the sick as occasion may require, keeping the men of each unit in separate wards or groups of beds, contagious or infectious cases excepted

5 The medical, surgical and hospital stores for the use of Native Troops in each station will be amalgamated into a single central store, with small branch stores for urgent requirements at hospitals too far from the central store, for convenience

Steps are being taken, and will shortly be published to alter existing scales when more than one Regimental Hospital exist in a station. The surplus will then be returned to store. By doing away with the present duplication of identical stores in the hospitals of units it is hoped that it will be possible to supply extra instruments, etc, the necessity for which is recognised

6 The purchase of extra drugs and hospital supplies, now made separately for each unit by its medical officer, will in future be made by the Senior Indian Medical Service Officer of each station

7 Returns of sick will continue to be submitted separately for each unit, as at present.

8 All cases of discipline originating in hospital will be disposed of by the soldier's own Commanding Officer, on the report of the Regimental Medical Officer”

MAJOR W J BUCHANAN, I M S., has gone home on privilege leave from July 13th, and Mr E W Payne acts for him as Inspector General of Prisons, Bengal

CAPTAIN H CROSOLE, I M S., is appointed Consular Surgeon for Arabistan and Kermanshah

CAPTAIN G B MCCONAGHY, I M S., is granted three months' privilege leave

THE fact that I M S Lieutenants and Captains are not counted as mounted officers and not given either horse allowance or allowed conveyance of a horse on transfer from one station to another has been for years a perpetual grievance. It is well known that junior officers are subject to very frequent transfers from one officiating appointment to another according to the exigencies of the service and a

junior Lieutenant or Captain I M S may find himself to day in a cavalry regiment in Mesopotamia and to morrow receive orders to go to join an infantry regiment in Mooltan or Peshawar. In the cavalry regiment he is bound to keep one or two chargers, but he gets no horse or conveyance allowance if he is sent to another regiment, even if it be a cavalry one. Then again Medical Officers are practically bound to keep a horse to do their work, to go out with troops on manoeuvres.

We think this is a genuine hardship, and if the Government of India see their way to remove it, it will be a boon much appreciated by the whole service

MAJOR S E PRALL, I M S, acts as Port Surgeon, Aden, *vice* Lieutenant-Colonel C Monk, I M S

CAPTAIN W HEATHCOCK, I S M D, Civil Surgeon, Unao, was granted privilege leave for one month from 16th June

MAJOR D M DAVIDSON, I M S, went on 3 months' privilege leave from 9th May 1906

LIEUTENANT J M A MACMILLAN, M O, 35th Sikhs, acted for some time as Civil Surgeon of Delhi

ON resigning his appointment as S M O of the Andamans, Major A R S Anderson, I M S, is appointed Civil Surgeon of Tippera, W B & A

LIEUTENANT COLONEL G H BULL, I M S, for many years Staff Surgeon at Poona, has been appointed to act as P M O, Quetta, *vice* Col McCloghly, I M S, on leave

LIEUTENANT COLONEL H M HAKIM, I M S (Madras), recently District Medical Officer, Tanjore, died on 17th May 1906

DURING the absence on 6 weeks' privilege leave of Lieutenant Colonel J L Van Geyzel, I M S, Major R Robertson, I M S, acted in addition to his other duties as Chemical Examiner, Madras

THE King has approved of the following promotions among officers of the Indian Medical Service —

TO BE COLONEL

BOMBAY

Lieutenant-Colonel (temporary Colonel) William George Hume Henderson, F R C S Dated 11th November 1905

CAPTAINS TO BE MAJORS

BENGAL

Dated 30th January 1905

Cecil Robert Stephens, M D, F R C S

Leonard Rogers, M D, F R C S

Gordon Travers Birdwood, M D

Dated 29th July 1905

Cecil Charles Stuart Barry

Ernest Alan Robert Newman, M D

Jay Gould, M B

Reginald George Turner

James Davidson, M D

John Mulvany

George Yeates Cobb Hunter Dated 17th November 1905

MADRAS

Dated 30th January 1905

Eric Harding Sharman

Thomas Howard Foulkes, F R C S

Dated 29th July 1905

Thomas Stodart, M B

Bhola Nauth

Alfred Eugene Berry, M B

Herbert St John Fraser

BOMBAY

Hugh Bennett, M B, F R C S Dated 24th July 1905

The promotion of Major P P Kilkelly, M B, is antedated from the 29th July 1905 to the 30th January 1905

LIEUTENANTS TO BE CAPTAINS

Dated 31st January 1906

William Samuel Jagoe Shaw, M B

Charles Seymour Parker, M B, F R C S

Harold Holkar Broome, M B

Frederick Noimam White, M B
Charles Gibbons Seymour
Davis Heion, M B
Thomas Corrie Rutherford, M B
Henry Clewe Kentes, M B
Leethem Reynolds
Ernest Charles Taylor, M B
Richard Arthur Needham, M B
Dwarkan Prasad Gail, M B
James Kirkwood, M B
Alfred Whitmore, M B

TO BE LIEUTENANTS

Dated 1st September 1905

Carl Henry Reinhold
Arthur Falconer Hayden M B
Broderick Edward Middleton Newland
Lewis Albert Hodgkinson Lack, M B
Edgar John Cecil McDonald
Kenneth William Mackenzie M B
William Dundas Wright, M B
John Francis Boyd
Vernon Northwood Whitmore
John Catto, M B
Narindra Singh Sodhi
W I Powell, M B
W C Gray, M B

SURGEON GENERAL A M BRANFOT, C I E, President of the Medical Board of the India Office was recently elected F R C S (Eng)

COLONEL T J H WILKINS, I M S P M O, Burma Division, is transferred to the Secunderabad Division as P M O, *vice* Dobson retired

COLONEL W O'HARA I M S, is appointed P M O, Bangalore and Southern Brigades

LIEUTENANT COLONEL N CHATTERJEE, I M S, Madras, is appointed to officiate as P M O, Burma Division

THE services of Captain A G Sargent, I M S, and of Captain W H Ozaly, M B, I M S, are placed temporarily at the disposal of the Government of Bombay

LIEUTENANT COLONEL SIR R HAVELOCK CHARLES, F R C S I, has been appointed a Physician in Ordinary to H R H the Prince of Wales

Leave to Japan for a course of study—With the approval of the Right Hon'ble the Secretary of State, one officer of the Indian Medical Service in military employ, in addition to the three officers of the Indian Army already authorised, will be permitted to proceed annually to Japan, for a two years course of study, under the conditions laid down in Indian Army Order No 426 of 1905, as amended by Indian Army Orders Nos 472 and 525 of 1905

MILITARY ASSISTANT SURGEON L K RODRIGUEZ F R C S, Ed, D P H, handed over charge of Henzada District to Assistant Surgeon McCarthy

THE services of Major A R Anderson, M B, F Z S, I M S, recently Senior Medical Officer of the Andamans, are placed at the disposal of the Province of E B and Assam

THE services of Captain C M Mathews, I M S, are placed temporarily at the disposal of the Burma Government.

LIEUTENANT COLONEL G W, P DENNYS, I M S, is appointed A M O of the N W F Province, *vice* Colonel A M Crofts, C I E, appointed officiating Inspector General of Civil Hospitals, Bengal, *vice* Col Macrae on leave

CAPTAIN A. N FLEMING, I M S, is posted as Civil Surgeon to Peshawar

THERAPEUTIC NOTES & PREPARATIONS

WE have received specimens of the medicinal preparations of Messrs C F Boehringer and Soehne, of Mannheim Walldhof, for whom Messrs Hadenfeldt & Co, of Calcutta, are the agents. They include Ferratoze, an albumen preparation containing iron organically combined with the albumen and said to be easily digested and not to affect the teeth, Jodferratoze, the same thing containing iodine as well as iron, Lactophenin, an antipyretic and antineuralgic remedy, of use in

influenza, rheumatism, &c, Theophyllin a diuretic that has been well reported on in cardiac and renal dropsies, Ceredin a remedy that has been recommended for acne, furunculosis and constipation, Yohimbin, sulphate of quinine and hydrochlorate of cocaine. Ceredin is a specially extracted fatty constituent of yeast, which has been proved chemically by Professor Roos to be of use in the treatment of furunculosis

Notice.

SCIENTIFIC Articles and Notes of Interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta

Annual Subscriptions to the *Indian Medical Gazette*, Rs 12, including postage, in India Rs 14, including postage, abroad

BOOKS, REPORTS, &c, RECEIVED —

List of qualified Medical Practitioners in Bengal, Secretariat Press
Heart Disease Broadbent New Edition (Baillière Tindall & Cox)
Clinical Bacteriology and Hematology Emery New Edition (H K Lewis)
Munro's Manual of Medicine (Baillière, Tindall & Cox)
Local Anesthesia.
Dental Caries Sim Wallace (Baillière, Tindall & Cox)
Gastric Surgery H J Patterson (Baillière, Tindall & Cox)
New Serum Therapy D M Paton (Baillière, Tindall & Cox)
Cancer, Nature and Treatment Shaw Mackenzie (Baillière, Tindall & Cox)
Primer of Psychology and Mental Disease Burr (F A. Davies & Co)
Urethrotomies and Kidney Capsulotomy Reg Harrison (John Bale, Sons and Danielsson)
The Combined Treatment of Eye Disease Burnham (H K Lewis)
British Guiana Medical Annual, 1906
D J Cunningham's Anatomy New Edition (Young J Pentland)
Green's Encyclopedia and Dictionary of Medicine, &c.
Scientific Memoirs, 24 (W S Patton)
Enteric Fever in India A study in Epidemiology and Military Hygiene By Major Ernest Roberts, I M S Calcutta (Messrs Thacker, Spink & Co) Price Rs 12
The Edinburgh Stereoscopic Atlas of Anatomy, Section V
Theory and Practice of Surgery By Walsham and Spencer 5th Edition (London Messrs J & A Churchill)
Pathology, General and Special By R T Hewlett. (London Messrs J & A Churchill)
Students Handbook of Operative Surgery By W I de C Wheeler M D F R C S, Surgeon to Mercer's Hospital (London Baillière, Tindall and Cox)
Phlebitis and Thrombosis By Warrington Harvard F R C S (London Baillière, Tindall and Cox)
Manual of Anatomy By A M Buchanan, M A M D, F F F S (Glas.) Vol I (London Baillière Tindall and Cox)
Lectures on Midwifery for Midwives By A B Calder, M B, M R C S, (London Baillière, Tindall and Cox)
Motor Cars Export Catalogue, 1906 (Messrs Jno Birch & Co, Ltd London)
Aseptic Surgery By Major Newman, I M S (Calcutta Messrs Thacker Spink & Co)
Annual Report of the Civil Hospitals and Dispensaries of the United Provinces 1905
Annual Report of the Sanitary Commissioner of the United Provinces, 1905
Triennial Report on the Lunatic Asylums in Bengal for the years 1903, 1904 and 1905
Report on the Administration of the Jails in the Punjab, 1905
Annual Report on Sanitation, Dispensaries and Jails in Rajputana.
Triennial Report on Lunatic Asylums in Eastern Bengal and Assam
The Philippine Journal of Sciences, June 1906
Calcutta Medical Journal.
Report on the Maritime Trade of Bengal, 1905
Annual Sanitary Report of Eastern Bengal and Assam for 1905
Problems in Animal Metabolism By J B Lanthier (London John Murray, 1906)
Annual Report of the Royal Botanic Garden, Calcutta

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Capt. Patton, I M S, Madras, Lt Col Crawford Hughitt, Capt McCay, I M S, Calcutta Major Elliot, Madras, Capt Gidney, I M S, Nasirabad, Capt Brodribb, I M S, Jhansi, Major Cornwall, I M S, Kassaui Major H Smith, Jullundur Capt MacGregor, I M S, Dr Hossack, Calcutta, Captain Franklin, I M S, Shillong, Dr Phil Mueller, Mannheim, Dr J Davidson, Travancore, Captain R O MacWatters, I M S, Peshawar Major W G Pridmore, I M S, Mandalay, Assistant-Surgeon Jogendra Nath Basu Darbhanga, C H A. Ram Chandra, Dera Ismail Khan N R Banerji, Philibhit Karuna K. Chatterjee, Howrah, Captain R D MacGregor, I M S, Rangoon, L A Bidwell, Esq, F R C S, London, Havelock Ellis, Esq, Leland

Original Articles.

CATARACT IN THE CAPSULE

BY HENRY SMITH,

MAJOR, I M S

"THERE are regions of mortality of which the Registrar-General takes no cognizance, one is that which relates to scientific theories. Then death-rate is high. Some perish early, launched into existence with defective vitality. Others, more robust, come to a sudden end, done to death in controversial contest. Others, again, at first seem vigorous, but afterwards slowly fade from inanition. Growing knowledge ceases to furnish them with support. The facts on which they seemed to rest are found to have different relations, and that which the theory was framed to explain is found to be otherwise intelligible."

SIR W. R. GOWERS

IN this controversy it would contribute to no useful end to discuss any further Major Herbert's 50 cases of extraction in the capsule which are made to look as if all his theories were based on them (*I M G* of June 1906), hardly worth going to print on and equally worthless for theorizing on. With him it is, appeals to theory and authority, with me it is, appeals to the facts of practice. How many Surgeons do we meet who remind one of the Subaltern of the Indian Army, who has got an "old regiment." They have got their schools and can never shake themselves out of the theories and practices of such schools—stick to such theories and practices as an ecclesiastic sticks to the dogmas of his creed. The surgery of to-day is heavily dominated by the dogma of authority, whose *raison d'être*, the mass regard as sacrilege to question, men who think themselves free from the shackles of dogma and who, while they talk admiringly of Darwin, would, if transplanted into the day of Darwin, no more be prepared to go with him to the legitimate conclusion from the *origin of species* than was his great compeer, Wallace.

Let us return from this digression. Major Herbert says that I should refrain from publishing in the *Indian Medical Gazette* matter belonging to a speciality, and that I should publish in an ophthalmic journal before an ophthalmic society, which, I presume, implies that I have taken an unfair advantage of the specialists of Europe. He seems to be unaware that the paper he is criticizing was published in the *Archives of Ophthalmology* of America and Germany. But this is not the point, I have no apology to make for publishing anything surgical in the *Indian Medical Gazette*. It is the leading medical journal of the Indian

Empire of 300 millions of people in which there are over 20,000 cataracts extracted annually, an empire in which there are over 1,000 commissioned Medical Officers and a large number of highly qualified and competent mission, male and female, members of the profession, together with our large and very competent assistant-surgeon class, amongst all of whom, those who operate on cataract are very far from being as ignorant of theory as Major Herbert assumes. My assistant-surgeon at whom he never ceases to throw mud is at least as experienced in everything concerning cataract as Major Herbert himself, and as competent to compute results.

The alternative—that I should publish in some European ophthalmic journal which very few in this country ever read, though in some of our Indian hospitals there are almost, if not altogether, as many cataracts extracted in a year as are in the whole of Europe, in the same time, by the enormous number of specialists, while I am thankful to Major Herbert for his advice, and while I am always open to conviction, he has not convinced me that I am not publishing in the proper medical journal—ophthalmic operators in India are quite capable of judging for themselves without being "dry nursed" by the theorists of Europe.

In his comment he says, I have used "unfair and unwarranted claims," that my figures are "questionable" and "inconsistent with common experience," and that I have published "absolutely unwarranted and unjustifiable statements," all, I presume, on the strength of his 50 cases supported by theory. The only practical proof he attempts to adduce in support of such strong language is that the "results are inconsistent with common experience," which assumes that experience of extraction in the capsule is common, which is not the case. I think I am right in saying that experience of this operation, as distinguished from that of the novitiate in the art, worthy of the name is confined to three men, one of whom is dead, and yet he calls it common. The above quoted language of Major Herbert is, I submit, over the borderland of fair controversy. The average man who, for example, removes goitres would, I think, justly be regarded as impertinent, if he used such language towards Kockel, who reports 1,000 cases without a death.

He talks about my "unsupported expressions of opinion." My opinions are based on a personal experience of about 14,500 cataract extractions over 13,000 of which were in the capsule. He calls this unsupported. What would he call supported? He wishes us to assume that his first and last 50 cases constitute his opinions as supported.

Like other theorists on this subject he talks about the anterior and the posterior capsule. This theory will, I think, "slowly fade from inanition," and, though the idol of theorists, extraction in the capsule will be its iconoclast.

It implies a separate nutrition and a separate function for the anterior and for the posterior capsule. It implies, in short, that the lens has two separate capsules—an anterior and a posterior, and such is necessary to explain the assumption that the anterior is generally opaque while the posterior is generally transparent. These assumptions are so self-evidently manufactured by theorists to fit their case, and so evidently not based on facts of observation that it is hardly necessary to discuss them. Let any one float 50 or 60 cataracts extracted in one morning in a basin of water and he will at once observe that there is no anatomical anterior and posterior capsule, that there is but one capsule and that he cannot say which is the anterior or posterior surface of it, and that it would be as difficult to then define an anterior and a posterior capsule on a cataractous lens as it would be to define an anterior and a posterior capsule on a serpent's egg. He will observe that there is no suspensory ligament attached to them. Let him decapsulate any number of the most transparent of them and examine them how he wishes. I do not think he will observe a transparent anterior or posterior capsule on 500 cataracts thus examined. How does the theory of transparent posterior capsule stand in the face of such a laboratory list? There is no such thing as a transparent posterior capsule on a cataractous lens.

Major Herbert "most emphatically holds that *iritis* and *iridocyclitis* (following cataract extraction) are without risk if they are properly treated." I would not be above learning from him how to treat such cases so that I could satisfy myself and inform the patient that these conditions are "most emphatically without risk" then and thereafter. Let any one refer to the authorities for whom Major Herbert has such reverence, and he will find that they do not agree with him that *iritis* and *iridocyclitis* following cataract extraction (traumatic *iritis* and *iridocyclitis*) however treated, are without risk and serious risk, both immediate and prospective.

Detachment of the retina Major Herbert did not say occurred in his 50 cases, but he leads us to believe that *late* detachment did occur in his experience in Bombay in cases in which there had been escape of vitreous at the time of operation, and I can only infer that those detachments were in capsulotomy cases. He has not given us any details of those cases nor does he refer us to the records of the cases in Europe—I presume he means Europe by the term "elsewhere,"—so that it is not possible to get into close quarters with him on this point. Has there been an *iridocyclitis* in those cases of *late* detachment? In capsulotomy cases in which there is an escape of vitreous and in which *late* detachment of the retina follows, an *iridocyclitis* is very liable to occur immediately after the operation. When the incision is made and

the capsule scratched—occasionally partially dislocated in the scratching—if vitreous appears before the lens is out, the operator is generally content with getting out the core and leaving on luck for the remainder. This I have little doubt is what occurs in Europe. These are the most likely of all cases to have an *iridocyclitis*—septic excluded. If the *iridocyclitis* is got under control—no easy matter—it is exceedingly liable to recur again and again. If not got under control or if it recurs the injury resulting causes softening of the eye and degeneration of the retina. The false membrane which it produces contracts and draws the retina and occasionally the choroid out of their bed. This result is attributed to escape of vitreous at the time of operation, whereas it should be attributed to the mass of lens matter and capsule left behind which causes the *iridocyclitis*, which in turn causes detachment of the retina. *Late* detachment is not an argument against extraction in the capsule in which *iritis* and *iridocyclitis* are very rare, but it is a strong argument against the old operation. My failures often come back to me even after years, and I examine them carefully. *Late* detachment I have never seen in which there was not an old *iridocyclitis*. Major Herbert says "Since it is an old established fact that loss of vitreous is followed in a proportion of cases by detachment of the retina, one is bound to assume that at Jullundur the same sequence obtains, but passes unnoticed" referring to *late* detachment, and that "*late* retinal detachment would not necessarily be connected by the patients with the operation." This is an assumption, to put it in its mildest form, that we are incapable of diagnosing a detachment of the retina, an assumption which I have no intention to discuss, it is not controversy. It also assumes that the patients know that we extract their cataracts in the capsule. This latter assumption is not correct as not one in 500 of our patients know what operation we perform. They neither ask nor are they told. His "old established fact" I challenge. The dogmas of all schools of surgery are "old established facts" and so far as surgery is concerned we must not hesitate to submit all "old established facts," and new ones too, to most rigorous examination with all the scepticism which true science demands.

He admits that extraction in the capsule is the "more brilliant operation." And on this point I think most surgeons will agree with him. He falls back on the "too nervous" patients of Madras and Bombay for extraction in the capsule. This reminds us of the set-off by European surgeons against litholapaxy in its early days, "the tolerant Indian bladder."

Major Herbert says "the whole question is one of results," but he evades the argument of results. He does not attempt to explain how this hospital under extraction in the capsule

has grown from an ordinary District Dispensary to be larger than the next four largest ophthalmic hospitals in the world so far as cataract is concerned. This is the unequivocal argument of results.

SOME OBSERVATIONS ON THE BREEDING GROUND OF THE COMMON HOUSE-FLY AND A DESCRIPTION OF A SPECIES OF MOTH-FLY

BIG D. FRANKLIN, B.A., M.B., B.C. (CANTAB.),
CAPTAIN, I.M.S.

Medical Officer, 8th Gurkha Rifles, Shillong

For the last nine months I have been carrying out a series of experiments with a view to determining the breeding ground of "*Musca*," the common house-fly.

The method of procedure has been as follows—Wide-mouthed bottles have been one-quarter filled with the material to be experimented with, and the mouth then closed by a piece of gauze tied with string.

The bottles were kept in a warm room during the night and put out in the sun during the day.

The material experimented with, was selected either because it actually contained larvæ, or because in the situation from which the material was taken, flies were found in large numbers.

Early in the experiments, it was observed that if the material selected was allowed to get dry, or if too dry material was selected originally, that the experiment gave a negative result.

In Shillong the cantonment trenching is carried out on the top of a hill, the soil of which is sandy and very dry.

This accounts, I think, for the negative result obtained in all the experiments carried out with material from this trenching ground. Four experiments were also made with night-soil, which had been trenched, and after a month dug up, and exposed to the air for 48 hours. It had undergone partial disintegration, but was still moist when first exposed. However, it apparently either dried too rapidly after exposure, or else had lost some special constituent or constituents, as it failed to serve as a breeding ground, and the four experiments gave negative results. At the same time material taken from various places, where latrine buckets were washed, and where there would be night-soil in a very liquid condition, in every experiment yielded positive results, "*Musca*," the house-fly being hatched out. This, in conjunction with the fact that "*Musca*" was not obtained, except extremely rarely, and then only single specimens, from other situations, such as near cook-houses, on dust heaps, etc., where the adult insect was

found in great numbers, and where one would have expected that the house-fly would breed, lead one to suppose that night-soil was the material in which the house-fly commonly breeds, and that these other situations were only feeding grounds. With a view to testing this supposition, some night-soil was taken straight from latrine buckets and collected into a large flat receptacle. This was exposed to the air. In four days' time this night-soil was found to be swarming with larvæ. These larvæ were about 42 of an inch long, they were yellowish in colour, extremely active but with no distinct head. Within a period of 36 hours to one week these larvæ became pupæ.

These pupæ were about 3 of an inch long. They were light brown in colour at first, and gradually became darker till they were ultimately a deep dark brown.

The puparium was opaque, thick and brittle. A soft tissue paper-like inner coat could be distinguished at the cut surface. In eight days' time a fly emerged through a circular opening in the anterior end of the puparium. In the case of this same fly exactly eight days elapsed in the pupal stage in three other experiments.

This fly on examination was seen to be black with yellowish markings. It was of the size of the common house-fly.

The antæ were plumose. The proboscis rounded and not adapted for piercing.

The curvature of the 4th vein was angular. The halteres were covered with a squama. The abdomen was composed of 4 indistinct segments, yellowish in colour and non-metallic. These are the characteristics of "*Musca*," the common house-fly.

At the same time numerous experiments were made with material from other situations where *Musca* abounds, but they were almost without exception, negative so far as this particular species was concerned.

So far then as these experiments have been carried out to the present, they go to show that the breeding place of the common house-fly is in night-soil, and that these other places, such as refuse, heaps, etc., where the imago abounds are only their feeding grounds. In the light of these facts and bearing in mind the capability of these flies of conveying bacteria, it would appear desirable to inhibit their growth as much as possible. For although one cannot say definitely that the common house-fly breeds only in night-soil, at any rate it breeds in great profusion in it and not in other situations where one would expect it to. I found that if night-soil was spread out thinly on a tray and allowed to dry quickly, that no growth occurred, and that even if the night-soil, so experimented with, already contained larvæ, that these died when the night-soil became dry. The addition of lime or perchloride of mercury also inhibited the breeding. With a view to at

any rate diminishing the number of these flies and at the same time lessening the dangers which they, with their power of conveying bacteria, threaten, the treatment of all night-soil with either lime or perchloride of mercury, both of which are equally efficacious, seems to be a measure worthy of consideration.

It is too early in these experiments to lay down hard and fast rules, but there is, I consider, sufficient evidence to state that the common house-fly breeds in great profusion in night-soil and not in the vicinity of cook-houses, etc., where it is to be found in such vast numbers. These latter situations being apparently only its feeding grounds.

In the course of these experiments I have come across a species of the Psychodidæ (the moth-flies or owl midges, as they have been called), which I believe, has not been described previously.

This moth-fly has been hatched out constantly from material taken from the neighbourhood of cook-houses, such as is found in the drain at the back of cook-houses.

The process of development from larva to imago is completed within 24 hours.

The larva (Fig. 1) is a whitish cylindrical maggot, active and about 4 of an inch long. It possesses a distinct head. There is a terminal breathing tube. All the internal organs can be clearly distinguished under the low power.

The pupa (Fig. 2) is about 29 of an inch long. There are well marked stigmata. The anterior part is dark brown, and the remainder regularly streaked dark and light brown. Under the low power various parts of the imago can be distinguished.

The puparium (Fig. 3) is built irregularly at the anterior end, below and between the stigmata. It is brittle and thin and presents a streaked appearance.

The imago (Figs. 4, 5, 6) emerges from the puparium head first (Fig. 7). It comes out quickly and at once begins to spread its wings. Even before this process is completed, it will sometimes run some little distance, and generally it runs some distance before taking flight. These flies are strong runners and moderate fliers in the way that they suddenly, as it were, jump up, they remind one of the "skipper" butterfly, but then flight is of short duration and they quickly settle again.

The imago is about 12 of an inch long and presents a stumpy appearance, its breadth being considerable. Even when looked at only with the naked eye, it presents a funny appearance. The wings are of a dark silvery grey colour, and the body more brownish.

The antennæ are easily seen. They have a bright silvery appearance. Under the low power, 13 segments can be distinguished, which are somewhat "heart" shaped. These segments gradually diminish in size towards the tip.

Numerous long hairs spring from each segment, all tending anteriorly.

The proboscis is short.

The palpi are composed of four segments, on which the hairs are numerous, but short and pikey.

There is a thick bunch of hair on the occiput.

The thorax is short and thickly covered with hairs. The legs are comparatively short and sturdy. They are fairly regularly covered with shortish hairs, the terminal claw is small.

The wings are broad in comparison with their length. They are thickly covered with hair, and there is a long and very distinct fringe of hair round each wing. There are two well marked tufts of hair on the anterior margin of each wing, near the body. The first longitudinal vein is simple, the second forked, the third simple, the fourth forked, and the fifth, sixth and seventh simple. When not in use the wings lie in a slanting position on each side of the body.

The abdomen is broad, and composed of seven segments. The hairs on it are collected into stout tufts. The hairs all over the body are considerably coarser than those on the wings.

The external genitalia can be distinguished.

Experiments were made with these flies, with a view to determining their power of conveying bacteria. The bacterium experimented with was the bacillus typhosus. Two plates of earth were sterilized. One of these was infected with a pure culture of the bacillus typhosus. They were then placed some distance apart in a gauze cage, with a glass window. Some pupal of the moth-fly were then introduced in a watch glass. When the flies emerged from the puparia, they could be seen flying backwards and forwards between the two plates of earth. After two days the flies were killed, and a culture tube inoculated from the formerly uninfected plate. In four days' time the appearance of the culture tube was as shown in Fig. 8.

A sub-culture made from the areas marked A and B, resulted in an apparently pure growth of the bacillus typhosus being obtained.

A second experiment was made on the lines of the first one, and a pure culture obtained straight away. These results support one's supposition that the moth-fly is capable of conveying bacteria similarly to the house-fly.

This supposition is worthy of consideration, in the light of the fact that these flies breed and are to be found in such enormous numbers in the neighbourhood of cook-houses.

I wish to express my thanks to Captain Goulay, I.M.S., Deputy Sanitary Commissioner, Eastern Bengal and Assam, for his help in these experiments, and also to Messrs Bethell and Lynch of my regiment for their respective illustrations.

Hospital Assistant Mahadeo Paishad has been most helpful in collecting material, etc.

SOME OBSERVATIONS ON THE BREEDING GROUND OF THE COMMON HOUSE-FLY AND A DESCRIPTION OF A SPECIES OF MOTH-FLY

BY CAPTAIN G D FRANKLIN, B A, M B, B C (CANTAB), I M S,

Medical Officer, 8th Gurkha Rifles, Shillong

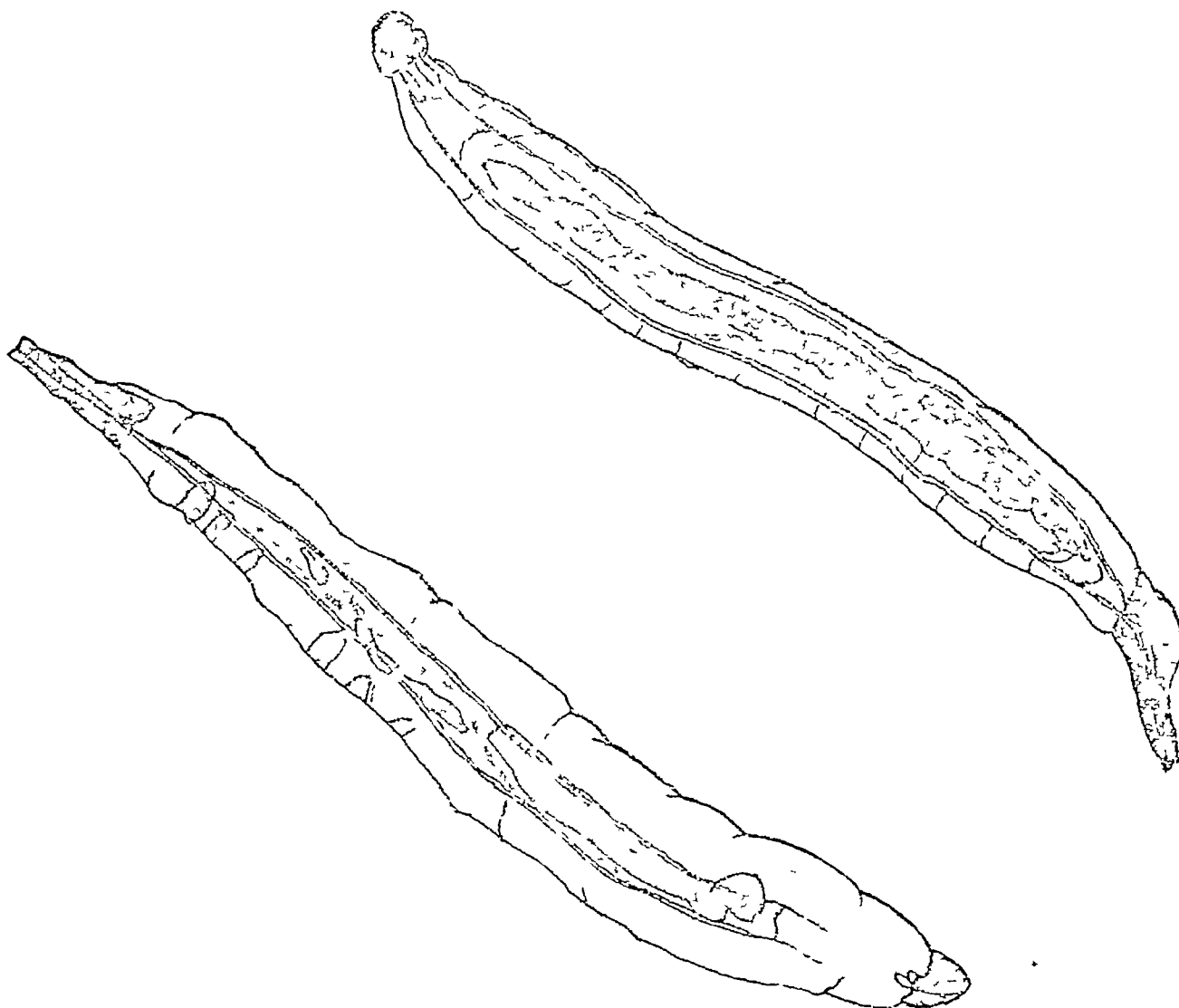


FIG I

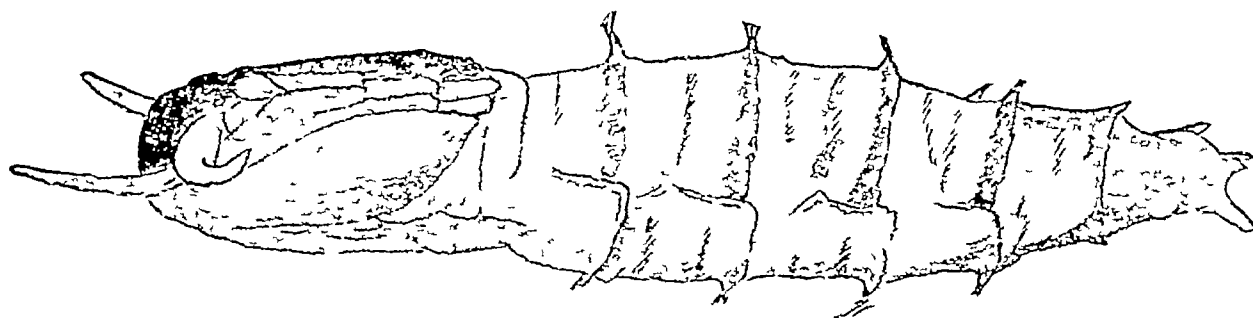


FIG II

SOME OBSERVATIONS ON THE BREEDING GROUND OF THE COMMON HOUSE-
FLY AND A DESCRIPTION OF A SPECIES OF MOTH-FLY

By CAPTAIN G D FRANKLIN, BA, MB, DC (CANTAB), IMS,
Medical Officer, 8th Gurkha Rifles, Shillong

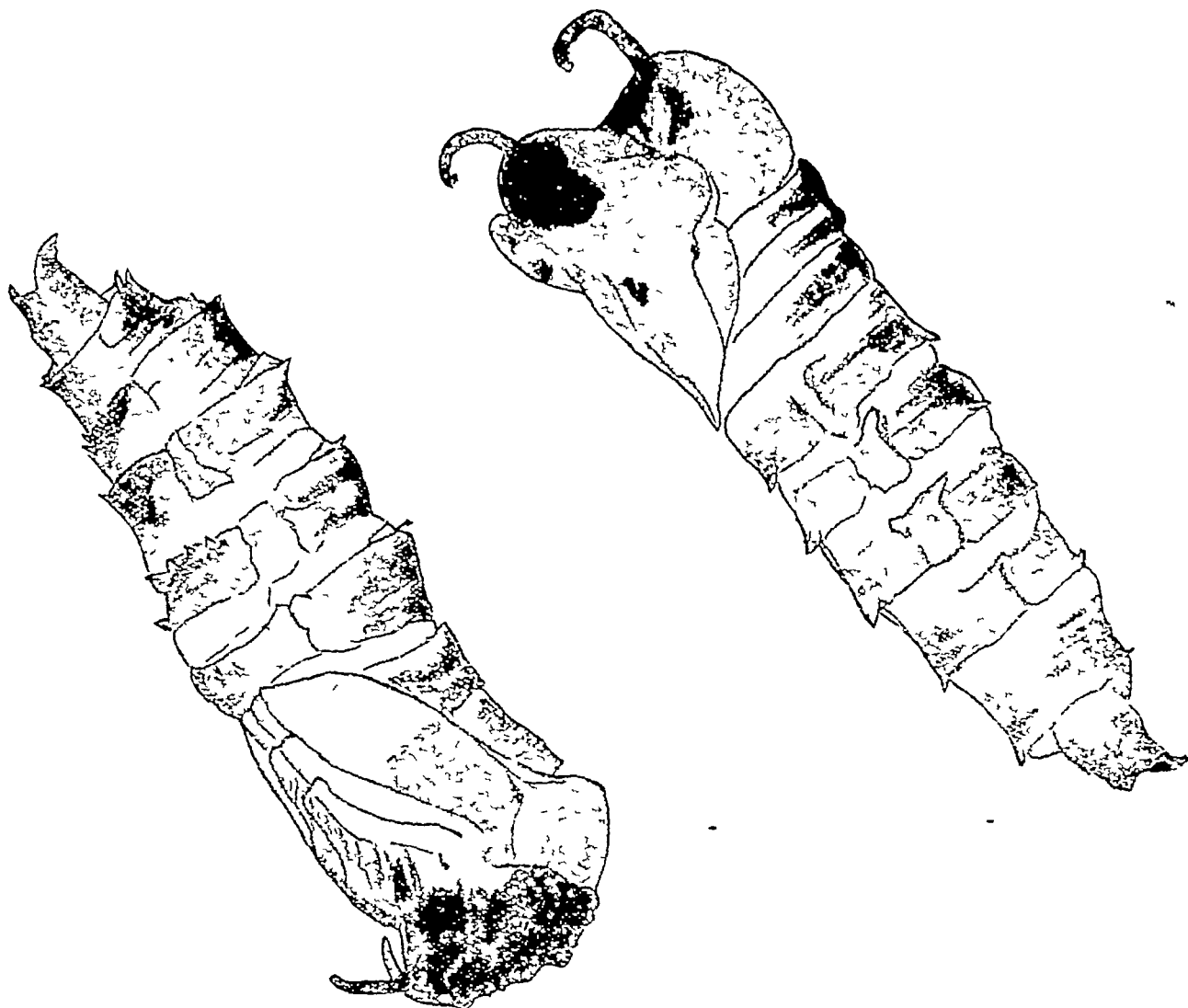
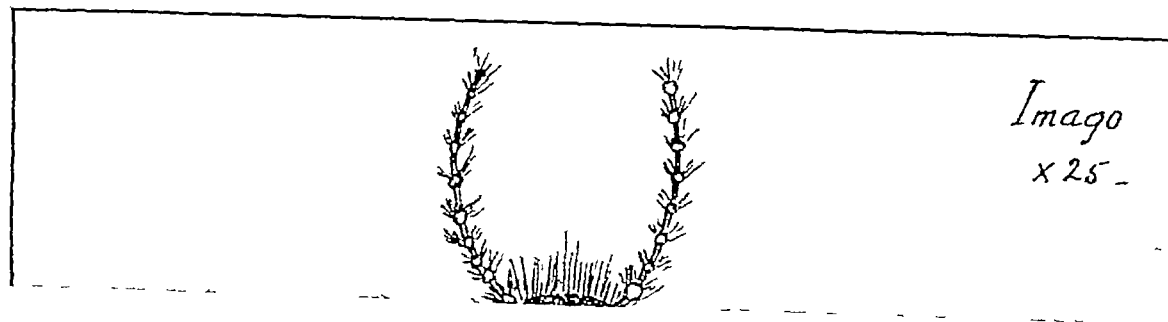


FIG III



Culture from Experimental L
4 days old

SOME OBSERVATIONS ON THE BREEDING GROUND OF THE
COMMON HOUSE-FLY AND A DESCRIPTION OF
A SPECIES OF MOTH-FLY

× 2 times.

By CAPTAIN G D FRANKLIN, B A, M D, D O (CANTAB), I, M S,
Medical Officer, 8th Gurkha Rifles, Shillong.

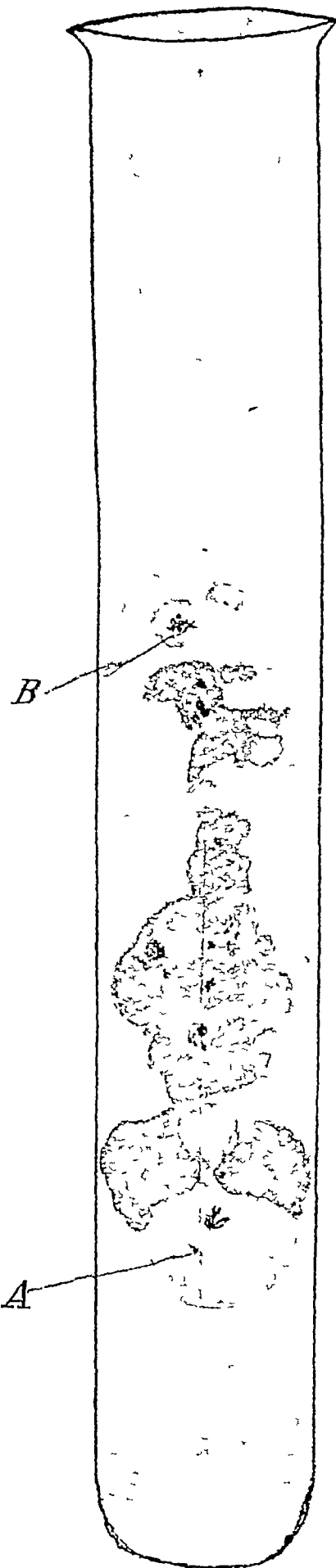


FIG VIII



FIG V

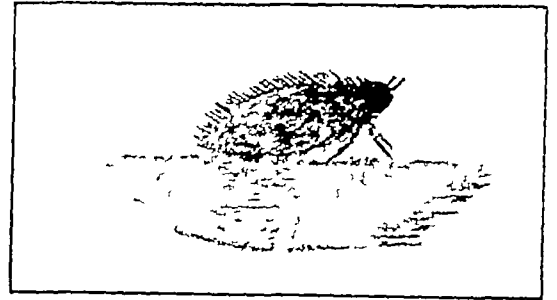


FIG VI

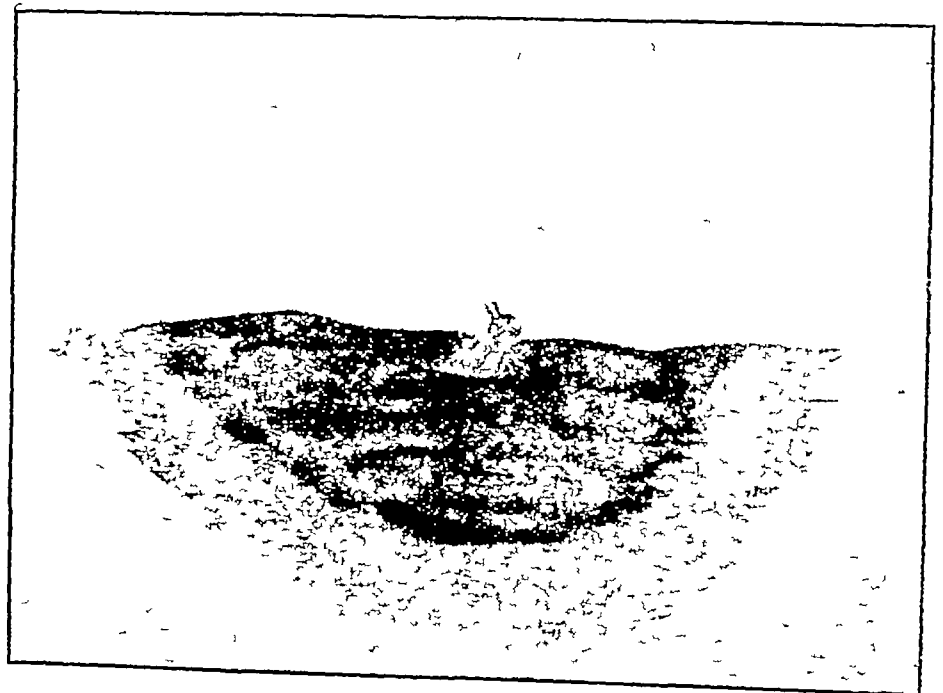


FIG VII

AN ACCOUNT OF PLAGUE IN BENGAL *

By W. W. CLEMESHA, M.D., D.P.H.,

Captain I.M.S.

Officiating Sanitary Commissioner, Bengal

PLAGUE came into Calcutta by sea and not by railway communication. It appeared first in 1898 in and about the British India Steam Navigation Company's wharf. Great care being exercised in Bombay in inspecting the crews of these coasting steamers, there is now very little doubt that the disease was introduced by the coming ashore of infected ships' rats. There appeared to be no imported cases of plague in this neighbourhood. The earliest cases were indigenous, and this confirms the rat theory. It is interesting to note that in the original infection of Bombay itself and of other Indian ports, as well as of Natal, this story repeats itself, viz., no infected person or imported case could ever be discovered, and plague almost invariably made its appearance first in and about docks. From Calcutta plague was carried about in many directions, but it very soon made its appearance in Bihar, Saran and Patna districts being the earliest infected. At present plague may be said to be firmly established in nearly every district in Bihar. It is also common in the immediate neighbourhood of Calcutta, which continues to be the great distributing centre. Among the neighbouring districts, Howrah, especially the town area, suffers severely from this cause every year. The disease appears to have taken a firm hold here, whilst its prevalence in the districts of Hooghly, 24-Parganas, Midnapore, Burdwan, etc., is mild and is generally confined to the imported cases from Calcutta and elsewhere. It is noteworthy that Eastern Bengal and Rajshahi still remain entirely free from this disease.

For the spread of plague two main factors are necessary. First and foremost is the presence of large numbers of rats, and the second is a dark, ill-ventilated, insanitary house (obviously a suitable abode for rats).

Now these two factors most usually obtain in certain trades. Hence the people engaged in these trades suffer most. It is not the trade itself but its environment that is responsible for the increased death-rate, or for the immunity of those who engage in it. Thus all shopkeepers, especially grain-dealers, halwais, sweetmeat vendors, show a very great mortality from plague. It is almost always the village shopkeepers who are first attacked with plague; they usually introduce the disease and they always suffer the most. These men have dark, infested store-godowns. In Calcutta, Barh and many other towns it is the bannia's quarter from which most deaths are returned. Unfortunately the raiyat's house is his grain-store as well as

his abode, hence in the agricultural villages the conditions under which he and his family live are not very different from those of the city bannia. Consequently, though not a shopkeeper, his family usually suffers severely.

The men who have no such houses, such as *nuths*, gypsies, fishermen, herdmen, almost entirely escape. Further, in rural areas the death-rate is much greater amongst women and children than amongst men, the reason being that they are more at home.

A house so constructed as not to be suitable for rats to live in, and not containing any food to attract rodents, would probably remain non-infected unless a case of pneumonic plague was placed in it.

There is the greatest difference between the Bihar and purely Bengali villages. In Bihar the mud houses are closely packed together so as to utilise every available inch of ground. There are no streets, narrow passages between the walls only remaining. The village is compact, it may consist of several tolas or hamlets separated by a considerable distance, but each such tola is a compact, overcrowded unit.

In Bengal exactly the opposite tendency prevails. Villages are long straggling lines of houses built on the highest part of the land to be above flood level. Usually each house is buried in a thicket of bamboos and rank vegetation, having its own compound and the individual houses being often some distance apart.

Undoubtedly the Bihar village is the ideal type for plague to flourish in. It is certainly infested with rats. Conversely it would appear that the Bengali village was not a suitable location for the virus. Plague has fairly frequently been introduced into such a village, but it has not spread to more than the members of the household. To-day, practically, all Eastern Bengal is free from the disease. I am not able to say definitely as to whether this type of village contains less rats than the Bihar variety, but I am inclined to think that this is the case. It is, however, certain that there is comparatively little overcrowding; the houses are much better ventilated and lighted, and are made of a material which allows rapid exchange of air. I am inclined to the view that these conditions and the possible scarcity of rodents have a considerable influence in rendering these districts unsuitable as a habitat for the plague virus. With most of these districts there is considerable communication with Calcutta, and yet it is only in Bihar and in cities that plague has obtained a foothold.

When once plague has been introduced into a place an epidemic of the disease in that place is, usually, the result sooner or later. In other words plague, like other diseases, shows three periods of activity—the period of increase, the period of maximum virulence, and the period of decline. All three periods are seen in epidemics, in which no measures to prevent the spread or

* Being an abstract of a report to Government, September 1905. Not for Prize Competition.—Ed., I.M.G.

curtail the progress of the disease are carried out. Naturally, if diastolic measures are taken very early it is possible, in some cases, to stop the epidemic entirely, but, if the disease is left to itself, the above divisions become apparent.

Following the decline and ultimate cessation of the disease, a fourth period of entire quiescence must also be described. During this time it must not be supposed that the disease has entirely died out. Certain it is, though the death-rate may furnish no evidence of the presence of the malady, it is, there, in a latent condition, none the less. Anyone with experience will be able to predict when the period of quiescence will come to an end, and when active recrudescence of the disease will occur. When the hidden or latent disease does wake into life a second epidemic, followed by a second period of hibernation, more or less like the first, will be the result.

(a) Is there any period of the year during which the epidemic phase of plague is more likely to occur? The answer is broadly speaking, "Yes," but there are many and important exceptions. The six cold weather months always show a very much greater death-rate from plague than the six hot weather months in Bengal. The worst months in India, from a plague point of view, are undoubtedly January, February and March.

As already stated, there are exceptions. Karachi epidemics of 1898, 1899 and 1900 all occurred in May, the Poona epidemic of 1899 occurred in August, and was the worst out of the seven that the city has ever experienced.

(b) Is there anything known regarding the climatic conditions which explains the fact that, in many places, the active phase of plague occurs in January, February and March? The answer is, decidedly, "No." It has become a recognized fact throughout Upper India that the cool months of December, January, February and March are the ones in which plague cases are to be expected, and, as the disease assumes its active phase then, it certainly spreads in the rural areas more rapidly during these months than at other times. But I know of no evidence which proves, or tends to show, that the cold is the cause of the plague germ awakening into activity.

Therefore, to sum up the subject, whilst there is no direct evidence to prove that the fall in temperature causes the plague bacilli to take on the epidemic characteristics, there is some slight evidence in favour of the opinion that certain climatic conditions, which occur at the commencement of the hot weather, do retard the activity of the virus, cutting short epidemics and stopping the spread of infection.

(d) Does the complete cycle in the life-history of plague, consisting of active and quiescent phases, always occupy 12 months? In other words, do epidemics of plague occur annually in all infected places? The reply is, "No, not

necessarily." It is noticed from reports that the first three epidemics which occur in any place are always more likely to be erratic, or not to recur annually at the same time of the year. But there is a tendency, as the number of epidemics increases, to get manifestations of the presence of the disease annually about the same time of the year.

Taking for granted that the disease itself is caused by the plague bacillus of Kitasato and others, is there any evidence to show what becomes of the micro-organism during the quiescent period? We have practically no knowledge whatever as to where to look for latent bacilli. It is probably in the house of the patient himself that the disease remains, but whether in the mud floor, the mud walls, or the holes of rats, there is no certainty.

As we shall see further on, the house is an important link in the communication of the disease from man to man, hence one naturally expects that it must be in some part of the building the disease lurks during its period of hibernation. This is borne out by actual experience frequently noticed in recrudescences of plague. Thus quite early in the second epidemic of plague in Atriah it was recorded that in 80 houses, from which cases had been removed at the first epidemic, the inmates had been again attacked when recrudescence took place. This occurred in spite of the fact that some of the houses had been disinfected.

Where plague makes its appearance in a given district, practically all the villages become infected eventually. The spread is slow, however, as Captain A. F. Stevens, I.M.S., suggests, like a ringworm spreading at the edges.

All villages that have had an epidemic show the usual recrudescence sooner or later.

It is impossible to say about proportion of villages in which re-importation takes place, but it is only in a very few cases. As the disease undoubtedly recrudescences itself, it is obviously difficult to be quite certain whether a new manifestation of activity is a recrudescence or a re-importation. Personally I do not think re-importations are so common as is supposed.

The methods by which the disease is carried from place to place—The points now to be discussed are the various methods by which the disease is carried from one infected place to another, hitherto free, also how the disease spreads from house to house in a city, or from village to village in a stricken district.

Before actually discussing the main question, certain other considerations bearing upon it must be gone into hence the following points will require touching on, viz—

- (i) The channels by which the bacilli enter the human organism
- (ii) The relative infectivity of the various kinds of plague, and the probable way by which the infective material leaves the body of the plague patient

- (iii) Any intermediate agent necessary, or occasionally present, in conveying infection from man to man
- (iv) The length of the incubation period
- (v) The susceptibility of certain animals to the disease

The channels by which the bacilli enter the organism—In all cases of invasion of the system by bacteria through the skin, one may find local reaction at the seat of inoculation, failing that, the next place where defensive action or resistance to the attacking forces of microbes is expected is the nearest lymphatic gland. If the protective action of the gland is successful the germs will remain localized but if unsuccessful the stream of bacterial virus will pass on into the general circulation, causing a septicæmia and, possibly, the death of the host.

Consequently as about 90 per cent of all cases of plague have buboes in the groin or axilla, it is reasonable to conclude that the seat of inoculation has been a small wound or an imperceptible breach of surface in the skin of either leg or arm.

In cervical buboes, especially those under the chin, in the parotid and sublingual region, the seat of inoculation is probably the mucous membrane of mouth, pharynx or tonsil. The mucous membrane of the nose is also a possible and likely place for receiving the infection which would give rise to cervical buboes.

A case of accidental inoculation in the eye of a nurse by a delirious patient who was suffering from pneumonic plague caused a bubo in the parotid region.

In *pestes pneumonica* the infective material is probably inhaled, it settles in the lung tissue and gives rise to the pneumonic symptoms. The bacillus finding a suitable *nidus* multiplies rapidly, and inflammation of the adjoining tissue is the result.

Thus plague gains entrance to the body either by imperceptible wounds in the skin, through the mucous membrane of mouth, nose, or pharynx, by the tonsil and by the lungs.

(ii) *The relative infectivity of the various kinds of plague*—(a) *Pneumonic cases*—It is an axiom, well known amongst all who have had any experience of plague, that primary pneumonic cases are extremely infectious, and that one will start an epidemic in an incredibly short space of time. These pneumonic cases almost invariably give rise to others, and appear to infect anybody who comes near them. The apparent immunity from plague enjoyed by Europeans does not apply to the pneumonic variety. Thus Colonel Manser's nurse took the disease from him and died. The medical attendant and nurse of a man named Barisch—a laboratory assistant in Vienna, who contracted the disease—both died of pneumonic plague.

Amongst natives I have seen many instances in which whole households have been carried off. In one small tola of a village inhabited by

Brahmins, all more or less related to one another, 15 out of 28 died of the disease.

Patients in pneumonic cases spit up almost pure cultures of the bacillus, and millions of them in each expectoration. This, doubtless, is partly the reason of the very infectious nature of the malady. In many epidemics pneumonic cases are rare, in others they are common, considerable variation being noticed in adjoining villages. *Pneumonic cases usually give rise to other pneumonic infections, but may also cause the bubonic variety. Bubonic cases, on the other hand, never give rise to pneumonic ones, infection spread by rats has been frequently noticed to cause pneumonic cases.* A case of this kind came to my notice recently in Lucknow, where four high-caste Hindu women, teachers in a girls' school, were exposed to the infection by rats dying in their house. One contracted pneumonic plague, one a severe septicæmic variety. It is extremely improbable that any of the four had been in contact with any pneumonic case of plague, or indeed with any other variety of the disease.

(b) *Bubonic Plague*—From what has already been said about the course of entry of the microbe in the bubonic cases, one would not expect to find that the cases were very infectious. Firstly, all the bacilli up to a certain time are confined to the bubo. In cases that recover in all probability they never get into the general circulation at all, so the possibility of leakage by any of the natural discharges, such as urine, faeces, sputum, etc., is nil.

Secondly, when once the disease has become a septicæmia, then during the remainder of the patient's life leakage of bacilli will surely occur into the urine, faeces, saliva, nasal mucous, etc., but that this is not very great is supported by the fact that bacilli have not been found in large numbers in any of these excretions. It is often extremely difficult to separate them. They are present, but in nothing like the same quantity as in the sputum of the pneumonic patient. Hence we may conclude from the above considerations that the bubonic variety of plague is only very slightly infectious and cases of the disease being infected direct from man to man are extremely rare, provided the patient is in sanitary surroundings. This is just what we find in practical experience. In the large hospitals in Bombay and Poona the staff, ward attendants and friends who were in close attendance on the sick kept almost entirely free from plague.

(c) *Intermediate agent necessary for conveying infection from man to man*—Now, as plague is incommunicable from man to man direct (except in the pneumonic variety) it follows that there must be some intermediate agent, which acts as either a carrier of the disease or, as it were, a common source of supply from which the virus is obtained by a large number of individuals. *That agent is the house in which the patient resides.*

It will be noticed that the phrases "in thoroughly sanitary surroundings" and "in the open air" modify our conclusion in the last paragraph. These are necessary for the reason that, although plague is practically incommunicable from man to man, it is extremely easily passed from one occupant of the same house to another, the path of infection being—the patient infects the house, and the house infects the other inhabitants. Now, if suitable measures of sanitation be taken, and the intermediary step (*viz*, the house) be done away with, we arrive at the same conditions as those obtaining in our hospitals and segregation camps, in which we find by experience that cases of infection from man to man are very rare. Thus our axiom No 2 might read as follows: "That in bubonic cases the disease is practically incommunicable from man to man, provided the agency of the house in which the patient resides be rendered inoperative."

In Poona and Bombay, where there are many double-storeyed houses, it is noticed that most cases of plague are met with on the ground-floor, where the conditions are worse.

Besides the fact demonstrated in our hospitals, that a sanitary building does not act as the stepping-stone for plague infection, there is a considerable amount of positive evidence which supports the statement that the house is largely concerned in transmission of the disease.

Thus if people are taken out of their houses when the place is infected with plague, as is shown by finding dead rats in it, and, before a case has occurred amongst the residents, those people do not get plague.

Further, if people who are living out in the fields, in temporary dwellings, are driven into their houses in the village by stress of weather, or go there of their own accord, cases of plague occur at once. This fact has been observed in many places. Whilst in the Patna district at the end of January, and the commencement of February 1900, we had 10 days' very bad weather, many of the people whom we succeeded in persuading to leave the villages, and who were free from plague whilst living in the fields or mango groves, were driven back into their houses by the rain. Within a few days of their return cases began to appear amongst them. This was noticed in some twenty villages near Bah.

Another fact that points to the house as a link in the chain of infection is that, in certain castes, where the men are out day and night in the fields or fishing, there is a great preponderance of deaths amongst women and children. In Mussulman villages, where the women keep closer to the house than the men, it is not unusual to find that the men escape whilst the women die.

The immunity from plague amongst the Bombay cabmen and boatmen, who pass the night either on the tops of their cabs or in their

boats, is another example of the same thing. During the early months of 1897, when the plague was raging in the city, these men mostly escaped.

Hence it may be considered an established fact that insanitary houses play a very active part in the spread of the disease, and act as a medium for infecting men in cases where, without the intervention of some other agency, the disease would not pass from man to man.

(d) *The incubation period of plague*—In nine cases out of ten this is from two to four days. Some few cases may develop earlier, and certainly cases have occurred in which the incubation has been longer. I do not propose to discuss this point, because evidence as to exact period of time must be carefully recorded, and I regret to say I have none that would be of any service. I simply give the above as the result of my experience, and it can only be taken for what it is worth.

(e) *The susceptibility of certain animals to plague and the part they may play in carrying infection*—We saw in the history of the plague in Bombay that rats died in thousands, and it had been ascertained by bacteriological investigation that the disease which caused the deaths amongst rats and men, was identical. It may now be further explained that rats are more susceptible to plague than man, infection of such a slight nature as to be unable to cause plague in man, would start it in the rats of a place. Thus, it is frequently noticed, before a single man has been seized with the disease in a village, the rats commence to die. The only explanation of this can be that some inhabitants going to and from an infected place, carry in the clothes or in articles they bring, sufficient virus to set up an epidemic amongst rats, but not sufficient to inoculate the bearer or other members of their household. Also, infection hidden away (as in gunny bags and possibly grain) that might not come in sufficiently close contact with man to cause him to be attacked by the disease would still infect the rats.

Further, in India there is a kind of squirrel which is as common or commoner than rats. They also can contract plague. These little animals live in trees and holes in roofs. They live a much more out-of-door life than the rat and, consequently, do not play as large a part in spreading infection, but still they must be counted amongst the various living agents which can carry infection.

During a plague epidemic, it is not at all uncommon to see them fall off the trees and die, as large numbers of them can always be found in the roofs of bungalows occupied by the Europeans, they may be a source of danger in this way.

It will next be necessary to study the methods of carrying the plague infection, from the seat of infection to localities hitherto free, in three natural divisions, in which the part played by

the various agents employed, will vary in importance. The divisions are —

(i) The methods of conveying the plague from a focus of the disease to an entirely new place at some distance, and hitherto free

(ii) The spread of the disease from house to house in the newly-infected town or village

(iii) The spread of the disease from village to village in a stricken district

(1) *The methods of conveying the plague infection from a focus of the disease to an entirely new place at some distance and hitherto free* — Theoretically speaking, the disease infection may be conveyed by—

(a) Sick men or persons in the incubation period

(b) Clothes

(c) By merchandise

(a) *Sick men* — As a matter of experience it may be stated, at the outset, in almost every case in which plague has made its appearance in a new district a patient or patient's attendant has brought it. The usual story is something after this kind — A cotton carder who nursed his brother, suffering from plague in Calcutta, came to his village of Sheikpura, Patna district, after his brother's death. Within a few hours of his arrival he was taken ill, and died in four days. A bania brought his son, a boy of eight years, who was sick with fever at the time, from Calcutta to Bahi. The boy died on arrival in Bahi, and the mother sickened and died within a few days. In three weeks' time, indigenous cases began to occur in the neighbourhood.

Some variation of the above story is, as a rule, elicited by an officer who goes to enquire into the origin of an epidemic.

(b) *Infection carried in clothes* — It is a matter of experience that cases in which clothes have been proved to be the means of conveying the living plague microbe for any distance are very rare. The instances one does come across are usually those in which clothes of the deceased have been smuggled into neighbouring villages either to evade disinfection or else stolen by some member of the burying party. Such cases as these are met with at times and will be referred to again, but those in which the virus has been shut up for some time in the clothes or has travelled a long distance are still rarer. I have never seen a case of this kind, and feel sure that, in India at least, they very seldom occur. It cannot, however, be denied that they are occasionally met with. The best authenticated instance, and the one in which absolute proof exists as to the clothes being the vehicle of infection, is as follows — Two Goanese stewards from a P & O steamer plying between Bombay and London got out their best clothes from their chests to go ashore in London. A few days after wearing the garments they both developed plague. The same clothes had been used on a similar expedition in Bombay, where

they were probably infected in some native liquor shop and had been stowed away in the men's sea-chests till the arrival in England some four or five weeks after.

(c) *Merchandise* — In India we have no authentic case in which merchandise has carried the plague microbe.

Thus we may summarise the conclusions from the foregoing remarks by saying that, in far the greater number of instances of importation of plague to an uninfected place the micro-organism is carried either by a patient himself or a person incubating the disease. The conveyance of the infection in clothes and merchandise for long distances is seldom if ever seen in India.

(ii) *The spread of the disease in a newly-infected town or village* — A reference to the paragraph concerning the animals that are susceptible to plague will be useful. Here we have a fairly graphic account of how the ordinary Indian village is infested by rats and squirrels, both of which animals frequently contract the disease. Consequently we should naturally be led to suppose that men, rats and infected clothing all may play a more or less active part in the spread of the malady. It is quite impossible to estimate what is the relative importance of the three factors, but human intercourse and rats are the preponderating influences. Clothes, etc., play a much smaller part in the conveyance from house to house.

The spread of the disease by human intercourse is naturally brought about in many ways. A man is taken sick, his relatives and friends of the same caste frequently come to his house to see him.

The history of the course of events from the date of first infection in a new town or village is interesting, and will help us to understand the part played by animals.

The following may be taken as a typical history of the start of an epidemic in any newly-infected town. *First*, an infected person arrives and gets ill, *second*, other cases may or may not occur in the infected house, if they do, the house-owner, fearing the righteous indignation of the neighbours, says nothing about it but runs away, taking the sick with him, or, if the patient has died, gets the corpse taken away quietly and then bolts, *third*, an interval of some two, three, or four weeks elapses, *fourth*, reports of rats dying in various parts of the town, *fifth*, isolated indigenous cases occurring in different parts of the town, in which it is very unlikely that any possible communication of the disease could have taken place between the first infected house or occupants, and the indigenous cases.

This being the usual chain of events, what is the explanation of it, and what part do the various agents play in the spread of the disease?

First, the virus is brought by the patient, he infects the house he resides in and the other occupants, *second*, rats will contract the disease sooner or later from the infected house. These

animals will spread the disease amongst themselves. This takes a certain amount of time, hence the interval described above as from ten days to four weeks before any further manifestations of the disease are observed. It will be seen that rats are not equally abundant in every village house. There are probably some in nearly all, but supposing, as in the case taken above, there is nothing particular to attract them to the empty house where the patient has resided, the time that elapses before the epidemic commences amongst the rats may be considerable. *Third*, when the disease is rife amongst the rats they will carry it about in all directions in the village, sometimes considerable distances. As more rats become infected they are noticed to be dying by the inhabitants, when this occurs, the houses infested by plague-stricken rats will pass the disease on to the residents. Naturally, the particular instrumentality of the rats in propagating and disseminating the disease is more apparent when all chances of spread by human intercourse are eliminated.

(To be continued)

"EXTRACTION OF CATARACT IN THE CAPSULE *versus* THE ORDINARY OR CAPSULE-LACERATION METHOD"

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(Concluded from page 321)

ALL these forming what might be described as a curtain dividing the globe of the eye, roughly into an anterior $\frac{1}{3}$ and a posterior $\frac{2}{3}$ and acting not only as a dam preventing infection, but as a safeguard to the anatomical equilibrium of the eye. The question arises—Do these structures, taking them individually or collectively, possess these functions after the lens has been extracted? I have already dealt with their anti-infection power and to deal with their function as a preserver of the anatomical equilibrium of the eye one must consider where these structures originated from and their functions in a normal eye with a sound lens, etc., *i.e.*, before an extraction has been performed.

To briefly analyse each structure

(a) and (b) *Lens capsule*—Strictly speaking (anatomically), there are no separate anterior and posterior capsules, these terms are only used for the sake of convenience. It started, we know, as a vascular mesodermic membrane by the intrusion of the mesodermic element through the choroidal fissure. This rich vascular membrane encircled the lens, the vessels degenerated and disappeared, and a transparent structureless capsule remained. What is its function in the normal eye? It offers no obstruction

to light, for its histological details are negative. In conjunction with the suspensory ligament, it supports the lens in the act of accommodation, moreover, by encapsulating the lens, it protects it from the action of the aqueous. It has neither functional, mechanical nor optical uses, when once the lens is extracted as is done in the non capsular operation, except that its presence may to a certain extent prevent a protrusion forward of the vitreous, which is likely to happen when the lens is extracted in its capsule, but this support is very weak indeed, when we consider how thin a structure the lens capsule is, and how any material resistance and support it might offer has already been much weakened by the extraction of the lens.

(c) and (d) *The Suspensory Ligament of the Lens*—Whether this structure is developed from the hyaloid membrane or otherwise its function in the normal eye is not only to support the lens in its proper position, but to assist in effecting changes in its curvature. It does not serve to separate the aqueous and vitreous chambers, for there is a constant stream going on through the labyrinth of interseptal spaces which abound and surround the equatorial region of the lens owing to the arrangement of the suspensory ligament. That the suspensory ligament plays a most important part in maintaining the anatomical equilibrium of the eye, with the lens "*in situ*," no one will deny, but of what use is it when the lens has been extracted? To my mind it is useless. I admit that after a rupture of the suspensory ligament, as happens in the capsular operation, there is possibly a freer interchange of ocular fluids, but does this disturb the anatomical equilibrium? One would be more correct in saying that a wide iridectomy disturbed this equilibrium and yet how often is this operation done without even a fear or a thought of a disturbance of this equilibrium? How a rupture of the suspensory ligament, as occurs in the capsular operation, will disturb the anatomical equilibrium of an eye (granted a normal ciliary secreting area) is to me an anatomical and physiological enigma.

(e) *Hyaloid Membrane*—The very existence of this is doubted by many, but I am convinced that a limiting membrane structureless in character, and encapsulating the entire vitreous does exist, be it mesodermic in origin or retinal, it matters not. The only function this membrane has (if the word can be applied here) is to keep the vitreous in its own chamber. It does not serve any other purpose. It allows the liquid secreted from the ciliary region to enter the vitreous chamber by transudation with freedom, but to attribute to this fragile structure, when intact, any anti-infection properties is to place your reliance on a very weak straw. Even when it is ruptured, as it must be when vitreous escapes, and a freer interchange of ocular fluids takes place, it apparently does no harm, as is

evidenced by the very high percentage of successful visual results in Major Smith's paper

I therefore fail to see of what important use this so-called diaphragm is to the eye that has been operated on by the non-capsular method, when the lens, the very organ for which it was developed and existed, has been extracted and has ceased to exist. This sentimental talk about it preserving the anatomical equilibrium of the eye is one that I cannot pretend to have any sympathy with, and I am of opinion that its loss cannot be brought forward with any weight as an objection to the capsular operation. I might ask what happens to this all-important diaphragm when the posterior capsule is needled or capsulotomed, as is so very often required in the non-capsular operation?

(3) Next comes the question of vitreous escape, and to enable me to apply this to the issue at stake, I shall enter somewhat briefly into its origin, structure, composition and source.

Origin—On reading over the enormous amount of literature on this subject one is forced to realise that we are to-day very far from seeing the embryology of the vitreous a settled question. Briefly there are four main theories of its origin.

1 *From the lens*, which is advocated by V. Lenhosseck and is only mentioned to be passed over.

2 *A transudation from the blood-vessels*, which is not accepted.

3 *Retinal origin*—This is denied by many authorities, though Kolliker states that it does play a part in the origination of the vitreous. He maintains that there exists a primary or retinal vitreous which is present in the early stages of the development of the eye. This disappears and its place is taken by a permanent vitreous derived from the retina-ciliaris and the mesoderm.

4 *Mesodermic origin*—"Rabl" and "Tomatola" deny that the vitreous originates in any way whatever from the mesoderm, while others including Leber, Van-Pee, and Ciurione are firm in their belief that it does play a very major part, and this belief is supported by the existence of a mesodermic layer in the space between the primary optic vesicle and the ectoderm, which is the actual vitreous cavity to be. Although Kolliker asserts that this mesodermic structure eventually disappears, Kolliker's latest view, which is shared by Van-Pee, is that the vitreous has a mixed origin, *viz.* ectodermic, which takes the first place, and mesodermic, which has a secondary place, but this seems impossible to believe, as Vichow rightly asks "How can an ectodermic formation come to be in such intimate union with a mesodermic structure?" From this it will be observed that although the origin of the vitreous is not agreed upon, yet the consensus of opinion is against the ectodermic origin and in favour of the mesodermic. Accepting this mesodermic origin, the

vitreous can easily be followed in its development from the primary entrance of its embryonic structure to its mature state. The whole blastema of the future vitreous, *i.e.*, its delicate retiform tissue is a product of the mesoderm. The involution of this mesoderm takes place about the fourth week of intra-uterine life, but its growth is not completed till a later period. The vitreous grows by a rapid development of a large quantity of its basal substance at the same time, and coincidently with this there is a rapid absorption going on of the originally intruded mesodermic cells. Its elementary condition is undoubtedly one of embryonic connective tissue cells descended from the original layer of mesodermic tissue which itself was originally composed of an irregular lacework of branched mesodermic cells lodged in a large quantity of a homogeneous substance. The vitreous may be described as an excellent type of a mesenchymal structure. In time it is entirely covered by a structureless membrane, the hyaloid. The adult vitreous can be described as consisting of a sort of a diopsical connective tissue. The fibrils forming a fine meshwork, in the interstices of which lodges a fluid practically identical with the composition of the aqueous humour and having a refractive power equal to that of the aqueous humour and water. It is the largest of the transparent media of the eyes and is a clear watery jelly-like substance encapsulated by the hyaloid. It is related anteriorly to the lens in its capsule and the ciliary processes. Posteriorly and laterally it rests against the internal limiting membrane of the retina. Its liquid part constitutes a 98.50 of its total, and the solids, such as extractives, salts, proteids, and nuclealbumin from 1.50. Its interior is traversed by radial and concentrically placed septa on which are sparsely found certain kinds of degenerated connective tissue cells. In fact it closely resembles Wharton jelly in the umbilical cord. These fibrils do not divide the cavity into separate spaces, for this apparent cleavage is not dependent on membranous partitions, which do not exist, but on minute interlamellar clefts possessing no distinct walls. "Schwabbe" aptly compares it to a sponge saturated with fluid, and describes its substance as consisting of a connective tissue very rich in water, whose fixed cells have disappeared and whose interfibrillar structure is extensively infiltrated with water, which is invaded by migratory cells. There are two kinds of cells to be found in the vitreous: (a) *Connective tissue cells* in all stages of degeneration, and (b) *Migratory cells* which are true leucocytes exhibiting amœboid movements. The connective tissue cells are very sparsely found in the adult vitreous.

Source of the secretion of the vitreous—Many ingenious experiments have been performed to determine the accurate source of the nutritive fluids of the vitreous. By nutritive fluids I allude to the purely liquid supply, for

this is all the vitreous asks for and requires (when there is an escape) and not a cellular and fibrillar supply, for these structures (except the migratory cells) I consider to be the adult degenerated remains of an embryonic structure serving no purpose whatever. In discussing this question, one must bear in mind that there is a wide difference between the nutritive requirements of those parts of the eye which have a purely mechanical or optical function, such as the vitreous and aqueous humours, and those parts such as the retina and ciliary muscle which are active. The eye is so arranged as to get rid of blood-vessels in the optical apparatus and to provide at the same time a sufficient, though limited supply of nutrition to those parts which contain no blood-vessels, and in this question of interchange of ocular fluids, Leber throws out a warning note that diffusion streams must on no account be confused with actual streams, such as the blood current.

Deutschmann proved that by excising the iris and ciliary body, the secretion of the aqueous was arrested, and that the vitreous shrank and became absorbed. Schoeler and Uthoff by subcutaneous injection of a solution of fluorescein found, within a very short space of time, a discolouration of the vitreous body traced from the ciliary region, the fluid having passed from the ciliary region through the zonula into the vitreous. "Lepat" injected potassium iodide and tested frozen sections of the eye for iodine, with starch, and obtained the same results. It was, moreover, noticed that there was no such discolouration if the ciliary processes were atrophied, excised or destroyed. "Nicati" states that the elaboration of the nutrient fluids of the vitreous depended on the pars ciliaris-retinæ from structures, he calls the "Uveal gland." "Haemeis" says, it comes from the retina. Treacher Collins who has studied this subject very deeply states that there exists in the plicated parts of the ciliary region, at the junction of the ciliary processes and the smooth ciliary ring, actual true secreting glands which he calls "Ciliary glands." These consist of tubular growths of cells, glandular in structure, similar to secreting tubular glands found in other parts of the body and subject to the same diseases, such as inflammations, over-growths, cystic-formations and glandular tumours as adenoma and carcinoma, which diseases he has diagnosed and proved pathologically as arising from these very ciliary glands. These experiments, therefore, prove that the ciliary region of the eye is responsible for the elaboration of the aqueous, and if not all, the major part of the nutrient fluids of the vitreous, though there may be a doubt as to the special structures exclusively engaged in this elaboration. These are the only known fluids that are poured into the eye. Should any come from the retina, it is negligible in quantity. Most authorities agree on this point including

"Ulrich"—"Lepat"—"Gifford"—"Panas" and "Pfluger." Such being the latest accepted source of the secretion of the vitreous I shall now endeavour to apply this information to the mooted question of vitreous escapes, as happens in cataract operations, chiefly the capsular operation.

Major Smith says "The vitreous seems to repair as well as any other tissue, and why should it not?" I suppose, he means by this, not a true regeneration *de novo* of the individual constituents of the organ, *ie*, an anatomical vitreous, but a repair of the fluid part of it only, *ie*, a functional vitreous. His idea being, I take it, that in his capsular operation, should any vitreous escape, no harm is done to the vitreous, retina or tension of the eye, because a fresh secretion of vitreous fluid occurs, enters the vitreous cavity and restores the tension (of course, I exclude those cases of very enormous escapes, when the lens is shot out and the eye empties itself, but even in these cases it is surprising how often and how quickly the eye fills up with no loss of vision).

If this is his view (and his reason for having no dread of vitreous escapes), then it is in strict accordance with the ideas of most ophthalmologists on this point.

As a rejoinder to this Major Elliott, who apparently assumes that by "repair" Major Smith meant a true regeneration of the vitreous, *ie*, an anatomical vitreous states that no true regeneration of the vitreous ever takes place. I agree with Major Elliott on this point, but by a true regeneration, I mean an anatomical vitreous, alike in every respect, including fibrillar and cellular elements as the escaped vitreous. It seems hardly possible, that an organ whose morphological elements are themselves, in the adult eye, in a far advanced state of degeneration and retrogression, can claim to have any regenerative power but while admitting this impossibility of a true regeneration of the vitreous the latest work of "Leber" on the eye must be remembered in which he gives a short account of the regeneration of certain parts of the eye as having been observed in certain young amphibians after a large portion of the organ has been excised, moreover, "Colucci" has observed the formation of a new lens from a localised proliferation of the iris epithelium, so it is quite possible that after all the vitreous might possess a regenerative power of its own. Here comes an important question. What is the function of the vitreous, taking it as a whole? (excluding its lymph space). It has no active function in the eye, and its use may be described as two fold, *viz*—

(a) Mechanical and (b) Optical

(a) Mechanical—This function of the vitreous is of considerable importance, for if it be permanently decreased in volume (*ie*, quantity), the support the lens receives from it is gone, and it is no longer firmly held in its

normal position but becomes tremulous. The retina also loses its support in front and puts with its close attachment to the choroid but when the lens is extracted, say, as is done in the non-capsular operation, this mechanical function, the vitreous exercises on this organ, ceases.

(b) *Optical function*—This function of the vitreous is almost identical with that of the aqueous humour and water, for it is only one of the intraocular or dioptric media of the eye with a refractive index as follows —

Vitreous	1.33382
Aqueous	1.3365
Water	1.3342

The question then arises on what part of the vitreous are its mechanical and optical functions dependent? Not on its cellular and fibrillar constituents, but almost entirely on its transparent jelly-like fluid substance, and so long as there is a sufficient quantity of this element, the vitreous loses none of its optical function, for its refractive power is not lessened, its volume is not diminished, the ciliary region does not supply it with anything but a clear transparent fluid and what more does the vitreous ask for when some of it has escaped in a capsular operation? If it receives all it requires, what harm is done by an escape? What harm is done to the vitreous itself? None, in my opinion. The migratory cells will appear fast enough from the neighbouring vessels, but there will be no actual regeneration of the connective tissue cells, or fibrillar network, these are not required for any optical purposes, as they are only the final degenerative remains of the primary embryonal connective-tissue, which tissue undergoes a marked change as the eye develops, for there happens an almost complete disappearance of the connective-tissue cells, the ground substance becoming infiltrated with a large amount of fluid, and coincidently with this cessation of the development of connective-tissue elements, delicate fibrils are formed, and I may add that in a freshly removed vitreous, it is by no means easy to distinguish these cells and fibrils as the morphological parts of a once beautifully transparent vitreous. I therefore see no reason why an escape of vitreous should be held in such dread and horror.

Having discussed so far, the next point is, does the capsular operation provide us with a higher percentage of vitreous escapes than the non-capsular? Major Smith gives his escapes as any thing between 6 and 7 per cent. Captain Oley, who has now started this operation, has a percentage of about 30 (12 escapes in 40 operations). I have had 11 escapes in 76 operations, one extensive and the others small. Against this the advocates of the non-capsular operation give a much lower percentage, 2 to 3, and also state that in the hands of the inexperienced (capsular), a very high percentage of escapes happens. This is equally true with beginners in the non-capsular operation.

I at once admit that you do have more escapes in the capsular than in the non-capsular operation, but the more experienced one becomes the less are his numbers. It is entirely a question of skill, dexterity and experience, and these can be acquired in time, but why should one condemn the capsular operation simply on the lack of experience? While admitting a higher percentage of vitreous escapes it does not of necessity follow that these eyes go to the bad, or are more likely to turn out failures simply because some vitreous has escaped. Why should they? The fluid part of the vitreous is soon secreted, its volume is quickly re-established and no harm is done. Why should there be any? 20 to 30 minutes' waiting sets things all right. I have seen eyes from which enormous amounts of vitreous have escaped regain their normal size in 20 to 30 minutes, the posterior chamber seemed to have refilled and the aqueous re-established. In a vitreous escape what happens? The hyaloid membrane is ruptured either at its upper border or its anterior surface and out pours the vitreous. The ciliary region is called into action, it secretes the liquid required, this enters the vitreous cavity and the hyaloid reunites (which is difficult to demonstrate), or the ruptured part is closed by a condensation of the fibrillar elements of the vitreous ("Retzius" and "Iwanoff" state that there is no true hyaloid membrane covering the anterior part of the vitreous, they state that a limiting membrane does exist, but it is developed by a condensation of the vitreous substance) and a normal vitreous chamber is established. That something similar to this happens, MUST be, for Major Smith's percentage of visual success MUST be accepted.

(4) The next important point to consider is *detachment of the retina*. That this does happen very often when a large quantity of vitreous has escaped MUST be admitted, but what is the percentage of these enormous losses in Major Smith's operation? In considering the chances of retinal detachment as happening in vitreous escapes, one must divide the escapes into those in which there has been a large loss, and those in which the escape has been moderate, small or negligible in quantity. That retinal detachment is more likely to happen in the former I have admitted, but Major Smith states that he has not had many such vitreous escapes, and that retinal detachment has rarely been observed by him in his operations. That retinal detachment happens, either immediately, or remotely, in the latter class is still an unsettled and unproven question. This vexed question can only be settled by a series of carefully compiled statistics. It cannot be settled by such statements as "It is likely to happen," "There is a dread of its happening," "There is every chance of its happening" or "It is bound to happen," &c. It must be "*ophthalmologically*" proved.

In an escape of vitreous, be it small or great, the volume of the vitreous *must* become decreased, the retina *must* lose its support in front, and is likely to lose its close attachment to the choroid (and this attachment is very close). The vitreous *does* refill (granted a normal secreting area), but how long does this take and what happens to the retina during this interval of escape and refilling of the vitreous chamber? (1) Can it stand this temporary loss of support? (2) Does it detach itself at once? or (3) Does a detachment, be it small or large, re-attach itself after the vitreous refills and it receives its proper support and no bad results take place? or (4) Is this re-attached retina not firmly reunited to the choroid, and does it leave a weak spot in itself which is likely to be permanently detached on the slightest disturbance of intraocular tension taking place? These are questions which can only be answered as I said before, by accurately and scientifically compiled statistics. I do not consider the higher percentage of vitreous escapes or a loss of the integrity of the diaphragm of the eye as serious drawbacks to Major Smith's operation. What I consider is the weak spot in his capsular operation is the possibility of a retinal detachment. I am not in possession of statistics to prove this, but what I mean to infer is that this is the only (and a very serious) sound objection that the advocates of the non-capsular operation can charge against him, but, as I said before, this *must* be proved. If Major Smith would be good enough to publish, for the benefit of other ophthalmic surgeons his statistics in this point, say of 1,000 cases, giving the percentage of both large and small escapes of vitreous, and in a tabular form follow the progress of these cases for four or five years, noting any decrease in vision year by year, and giving a percentage of each substantiated with careful ophthalmological examinations of his cases, he will clear up his *one and only* weak point. If he can prove by this that he has not observed any steady deterioration in vision or an increase of retinal detachments as years go on, then I have no hesitation whatever in saying that his capsular operation will be recognised as the ideal, and only one, for the extraction of cataract. Till then the selection of the operation must be one dependent entirely on choice, skill and experience.

I have for years practised the non-capsular operation extensively, having performed over 2,000 such operations, but have lately performed a fair number of capsular extractions—not numerous enough to enable me to form or express any decided opinion one way or the other except that I am *highly* pleased with it*. I have obtained a high percentage of successes in my non-capsular operations, and it is a treat to watch the skill with which Major Herbert cleans out the soft lens debris from the

lens capsule, leaving a perfectly clear black pupil. I know that other non-capsular operators have also obtained excellent and lasting visual results, and I am therefore naturally reluctant to give it up in favour of the capsular method of operating, but my mind is just now quite an open one, and I shall be entirely guided by my own results, those of others, and the statistics I have asked Major Smith to publish. I do not fear a vitreous escape provided it is not enormous, neither do I attach any importance to the integrity of the diaphragm of the eye, the only thing that keeps me from entirely adopting the capsular operation is the remoter fear of retinal detachment, and I believe that if it was not the fear of this happening and its inevitable deterioration of vision, Major Smith's operation would *to-day* be universally adopted. This can only be a question of time for, or against it, and the sooner the profession is supplied with these statistics the better it will be. At the same time, I do not think it is a generous attitude to take up, simply because a surgeon has not practised the capsular operation, to decry Major Smith's operation and to hold up the finger of warning to junior surgeons against adopting it. Can Major Elliott produce any statistics against what Major Smith has stated? Can he publish any series of cases in his own experience showing the percentage of cases of vitreous escapes which have developed retinal detachment or shown a steady decrease in acuteness of vision, backed up with careful ophthalmological observations confirming these points? If he can, then it will be the death blow to Major Smith's capsular operation, and the question will be decided once and for all, but till then I shall await results, and if in time (for I intend paying a visit to Major Smith next October) I find, that in the capsular operation I have one which gives me a higher percentage and *standard* of visual results—one that excludes the trouble so often exhibited by soft lens debris left behind in the capsule one that does away with the necessity of a secondary decision operation (and this is required in at least 30 per cent of the non-capsular operations), and one that does away with irrigation of the anterior chamber and the entrance of so many instruments into the eye. I say, I shall have no hesitation whatever in adopting it to the almost *entire* exclusion of any other method of operation and irrespective of what the masters of Europe do or say, many of whom I had the pleasure of seeing operate and discussed matters with.

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* I hope soon to send a further contribution on my Capsular Operations

A Mirror of Hospital Practice.

A CASE OF COBRA BITE—RECOVERY

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THE case of cobra bite about to be described occurred during dinner time in the mess bungalow of the regiment to which I was attached. A young Tamil servant suddenly called out that he had been bitten by a snake. He had been standing by a box raised above the ground when he felt a prick upon the foot, and, looking down, saw a snake retreat under the box. The snake was at once killed and proved to be a cobra just over two feet long.

Within three minutes of the bite, a ligature consisting of a table napkin was applied to the leg about its middle, and a stick inserted into the ligature and twisted round until the circulation in the leg below was nearly stopped. Crystals of potassium permanganate and a scalpel were quickly applied on the spot, and within ten minutes of the bite an incision had been made and the crystals freely applied. The incision was about half inch long and possibly $\frac{3}{4}$ inch deep, and bled freely, so that the crystals had to be pressed well into the wound to prevent them being carried out by the flowing blood. The part incised was a spot pointed out by the boy as that where he had been bitten, and which he said was very painful. There appeared to be a slight puncture at the spot he indicated, but in the lamplight it was by no means definite. This spot was in the right foot over the posterior portion of the metatarsal bone of the little toe. Antivenene had also been sent for from the hospital, and 20 cc. of this was injected subcutaneously in the right flank. The antivenene was injected within 45 minutes of the bite. Up to this time, the patient exhibited no marked general symptoms whatever. He kept complaining of the pain in the foot, but was perfectly sensible, and his demeanour far calmer than that of his relatives who had collected round him. The pulse was 80, regular, but with marked high tension, the breathing slow and steady. The ligature was still on the leg, and was not completely removed until midnight. He had been bitten at 9.5 P.M., the ligature was slightly relaxed at 10.30 P.M. and so on gradually until midnight, when it was finally removed. At midnight the symptoms continued the same, *i.e.*, were almost *nil*—the high tension of the pulse being the exception, and the respiration slightly increased in frequency. The foot was now somewhat swollen, and he continually complained of pain in it.

Tuesday, May 29th—I saw him at 7 A.M. He stated that he had passed a sleepless night on account of the pain in the foot, was perfectly sensible. Felt hot and feverish to the touch, pulse 96, high tension, regular.

10 a.m.—Saw the patient at the Cantonment Hospital at this hour. Temperature 104° , skin dry, pulse 118, very full and strong, respirations 30.

7 p.m.—Temperature 104.8° , skin dry, pulse 130, very full and strong, respirations 30, weak, *alae nasi* working, no definite cyanosis, patient extremely drowsy, cannot get sensible answer from him, no signs of any paralysis. Foot much swollen all over dorsum and up the leg as far as ligature was applied, here the swelling abruptly stops.

Magnesium sulphate $\bar{3}$ ss given in the morning, and three motions have been passed, the last two diarrhoeic.

Wednesday, May 30th, 10 a.m.—Temperature 103.8° F, pulse 128, much less full and tension less, respirations 36. Patient very much brighter and more wideawake. Answers questions and turns freely in bed, but complains of great pain in foot. Foot largely swollen, but tension in it slightly less, swelling now extended to knee, and pitting occurs over tibia. Last night four motions passed.

6 p.m.—Temperature 104° , skin dry, pulse 134, tension moderate, respiration 36, shallow, thoracic and somewhat fluttering, patient restless and complaining of pain in foot, tongue covered with thick white fur, no cyanosis, no paralysis. Patient has vomited once, and had four motions which contained undigested curds.

Thursday, May 31st, 10 a.m.—Patient much better. Temperature 101.8° , pulse 110, tension moderate, respirations 32, steady and not fluttering, *alae nasi* not working, no cyanosis. Patient quite sensible. Three motions last night, very watery and containing undigested curds. Swelling of leg diminished, foot considerably swollen, and some large blebs containing clear fluid have formed on the dorsum of the foot.

6 p.m.—Improvement continues. Temperature 101.6° , pulse 108, respirations 30. Has had two motions since the morning, very watery with a few small lumps of faeces.

Friday, June 1st—Temperature 99.2 , pulse 84, respirations 26. Patient's general condition now good, and is cheerful. Leg less painful and swelling somewhat less. No diarrhoea last night.

Saturday, June 2nd—Temperature 98.2° , pulse 70, respirations 26.

The patient's subsequent progress was uneventful except for a small area of gangrene which occurred on the foot. This occurred not over the site of the incision, but well internal to it. A small superficial slough subsequently was cast off, and a healthy ulcer resulted.

Treatment—Apart from the initial treatment with antivenene and potassium permanganate, the treatment adopted was to encourage the elimination of the poison. The patient was kept on a diet chiefly of milk. A diaphoretic mixture was given every three hours, and doses of brandy $\bar{3}$ ss at the same intervals on the second and third days. An initial dose of magnesium

sulphate $\frac{1}{2}$ ss was followed by diarrhoea which was not checked in any way.

The body was sponged with water at frequent intervals of the day and night. No local treatment apart from a flannel bandage was applied to the leg during the acute stage of the illness, on the theory of not encouraging unduly rapid absorption of any venom which might be present in the effusion.

Comment—The signs referable to the venom were therefore the pyrexia, the high-tension rapid pulse, the feeble respiration, the drowsiness, and the gastro-intestinal disturbance. The signs of cobra-poisoning which did not occur were paralysis and cyanosis. How far the local conditions in the foot were referable to the cobra-poison will be discussed later.

Pyrexia—This was puzzling, as none of the literature available on the subject mentioned this as one of the symptoms of cobra-poisoning. The pyrexia was directly coincident with the other symptoms mentioned, and declined with the decline of the other symptoms. The temperature for the second and third days scarcely fell below 104° F, when the other symptoms were also most acute. The temperature fell rapidly on the fourth and fifth days, when the high-tension pulse, feeble respiration and diarrhoea were also righting themselves.

Pulse—The rapid and at the same time high-tension pulse was most remarkable. There were no abnormal sounds over the heart area. On the morning of the third day, there was a striking change in the pulse, which was noted even by a young inexperienced hospital assistant. Though still rapid (124 beats per minute), the fullness and tension were very much less, the pulse feeling normally soft and compressible, as compared with the hard almost cord-like sensation the artery had previously given to the examining finger.

Respiration—During the second day this was rapid, seldom falling below 36 per minute. It was feeble and fluttering in character, and mainly thoracic, the abdomen moving but little with respiration. A close watch was kept upon it, in case it should fail and artificial respiration be necessary. It afforded a striking contrast to the sthenic condition of the pulse.

Drowsiness—This became marked on the evening of the second day. He had been mentally dull all day, and towards the evening he could not be roused sufficiently to give any answer to questions, save an indistinct murmur.

Diarrhoea—This appeared to have been initiated by $\frac{1}{2}$ or $\frac{3}{4}$ ss of magnesium sulphate given on the morning of the second day. A normal stool in the evening was followed by six loose stools before the third day, another seven by the fourth day, after which the number fell to two on the fifth. The stools had no special characters, except that they contained undigested curds and were very watery. The tongue was thickly coated with yellow fur throughout the acute stage. On the evening of the third day the patient vomited once.

Local signs—The foot had slightly swollen by midnight on the first day, when the ligature was finally removed, the swelling being in a longitudinal line above the site of the bite. By the evening of the second day the whole foot and leg was swollen and cedematous as high as the site of the ligature, when the swelling abruptly stopped. On the next day the swelling of the leg extended up to the knee, but did not subsequently extend higher than this. The swelling began to diminish on the amelioration of the other symptoms, but lasted for a considerable time after the patient was otherwise well. On the dorsum of the foot several large blebs containing clear fluid developed, and a small area of the skin underlying one of these blebs became white and necrosed, subsequently sloughing off over a small superficial area. This necrosis did not occur over the site of incision, but well to the inner side of it.

The case appears to possess two peculiar features, the pyrexia and the comparatively long duration of the symptoms. It is probable that this duration was due to the long retention of the ligature and the subsequent great swelling of the leg, preventing the rapid absorption of the poison. It is difficult to estimate how much part the two curative measures of potassium permanganate application and antivenene injection took in the recovery of the patient. It was impossible to locate the exact site of the bite, except from the patient's statement, and I am unaware how far a local application of potassium permanganate will extend itself laterally, in order to counteract venom which may not have been located at the same spot as itself. The symptoms of this case seem to point to a natural elimination of the poison. On this view, the prolonged application of the ligature and the subsequent cedema delayed the absorption of the poison which was absorbed little by little into the general circulation and gave rise to symptoms lasting during four days, the venom being considered to be excreted *pari passu* with its absorption into the general circulation. Rogers states (*Indian Medical Gazette*, September 1904) that a distinct blood-stained effusion was found in the subcutaneous tissues at the site of experimental injection of cobra venom into animals, and considers that this effusion may materially check the absorption of the poisons. It is highly probable that the extensive effusion present in this case acted in the way described, and the neutralising influence of the small dose of antivenene and even of the potassium permanganate was probably not great. It is possible, however, that the dose of venom injected was very large. It seems worth considering in the case of a cobra bite having to be treated in the absence of any chemical or other antidote whether the prolonged application of a ligature above the site of the bite might not itself prevent a fatal issue. The retention of such a ligature for a period of two hours will cause an extensive effusion,

A CASE OF COBRA BITE— RECOVERY BY LIEUT R D MACGREGOR, B A, M B (OXON), I M S

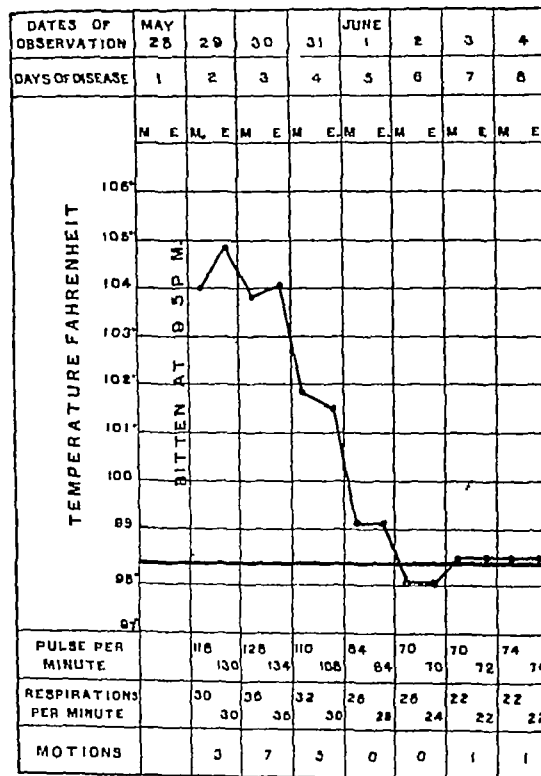


FIG 1

which itself must further delay the absorption of the venom into the general circulation after the removal of the ligature. The venom would enter the general circulation in quantities sufficiently small to be dealt with by it, rather than in an overwhelming sudden dose.

MALARIAL FEVER WITH APHASIA

By P. DEE,

CAPTAIN, I.M.S.,

Civil Surgeon, Bassein

As malarial fever with aphasia is a condition spoken of in text-books, and but seldom seen in general practice, the notes of the following case may be of interest—

Jeer Bandhan, a Hindustani male, 20 years of age, was admitted into Hospital, Bassein, on 3rd March 1906, with a temperature of 102° 6, pulse 120, and respiration 38 per minute. He was unable to speak or give any account of himself. On the other hand, he could hear distinctly and was of good intelligence and by means of signs answered "Yes" or "No," to questions put to him.

There was no motor paralysis or loss of sensation.

Past history—His father, a telegraph line-man of the Government Telegraph Department, states that the patient accompanied him to a village about 6 miles from Bassein, to repair the telegraph line. They lived in a tent, and at 3 P.M. of 26th February patient got an attack of fever preceded by shivering.

This fever lasted up to the time he came to Hospital on the third day of March, but on the 1st of March, two days before admission, patient lost his power of speech.

Heart, lungs and digestive organs normal. No enlargement of liver or spleen. No history of being addicted to either opium or alcohol. Knee jerks normal. No paralysis. Sensation normal. Urine contained small quantity of phosphates otherwise normal. Was given calomel, gr. v, and a diaphoretic to reduce the temperature.

Blood was twice examined on the 3rd instant, but no parasites found. It was again examined on the 4th instant when tertian parasites were found.

He was then put on quinine (5th March) and temperature fell next morning to 99 and came to normal on the 10th instant. On the 8th he began to talk, but the words were incoherent. On the 15th his speech, which had been gradually improving, became quite clear. On 23rd he complained of deafness, and quinine was discontinued, and a tonic of iron and strychnine substituted.

He left hospital cured on 3rd April. A case of this nature is not met with very frequently, and is, I think, of interest from the fact that once malarial fever was diagnosed microscopically and the aphasia looked on as being due to malaria, and the case put on appropriate treatment, patient began to improve.

Very unfortunately a four-hour temperature chart was not kept up, as having found the

parasite, the chart for the diagnostic purposes was not so important as it would have been, had we failed to find the parasite.

I do not think there can be much doubt in this case but that the aphasia was due to blocking of some of the smaller vessels of the speech area by either parasites or pigment, or by both. The very rapid improvement under quinine and the absence of any other exciting causes leads to the same conclusion.

I am much indebted to Mr. C. R. Chetti, Hospital Assistant, for the notes and careful watching of the case.

A NOTE ON THE BENEFICIAL EFFECT OF THE IMMEDIATE INCISION INTO PLAGUE GLANDS

By V. B. NESFIELD, F.R.C.S.,

CAPTAIN, I.M.S.

LOOKED at from a broad point of view, a lymphatic gland infected by the *B. Pestis* is in a very similar condition to a gland invaded by a virulent type of pyogenic organism. In both cases, the gland is swollen and often so tensely that it is a matter of wonder that it is able to hold its contents without bursting its capsule. In both cases the resident organisms are engaged in rapidly elaborating toxins, and themselves in large quantities, in both cases these toxins are finally expressed, (one can hardly say absorbed as the pressure is so great) into the lymphatic and vascular systems, and soon produce a condition of poisoning.

The organisms finally also become so numerous that there is no room for them in the gland, and so these too are squeezed on into the further lymphatics, and finally reaching the blood stream, produce septicæmia and death.

The very fact of their growing so luxuriantly means that the body does not offer them much resistance, but the more the body is weakened by the toxins they produce, the greater is the headway they can make.

So that it becomes imperative, to prevent any further toxin absorption, not only to prevent death from poisoning, but to strengthen the system to combat against the local bacterial invasion. In the case of severe lymphadenitis due to pyococcic invasion, it is a matter of common surgical experience that incision into the gland through making the exterior the easier channel of exit to its poisonous contents, produces such a marvellously salutary effect, as to give a well-planned incision the highest place in therapeutics while the improvement in the blood supply to the gland helps towards its ultimate recovery.

Surgical experience shows that it is dangerous in these severe cases to wait for suppuration or softening in the gland before incising into it, as the immediate necessity demands that no more toxins shall be absorbed, and that waiting only means an additional risk from septicæmia. All that is hoped for, is that the incision will produce

a good serous discharge. If this early incision in septic adenitis produces such a marked beneficial effect, why should it not do so in adenitis due to plague infection, where the toxins are more potent, and the micro-organisms even more ready to disseminate themselves throughout the system?

Why should not early incision be as beneficial in one case as the other? To settle this point, I have incised every plague gland with as little delay as possible, in all the cases which opportunity has given me, and with such good results that I am tempted to mention the matter, although a little prematurely.

This treatment cannot be carried out in every case of plague, it is suitable only for those cases where the sudden swelling of a superficial gland is found to be the marked feature of the case, together with the usual concomitant signs of plague, marked depression and fever.

It is important to note that the gland should on no account be removed, and should be disturbed and injured as little as possible, the aim in view is to cut deeply into it, so as to give free external exit to the toxic serum and organisms, and not to open up the cellular tissues, and periglandular lymphatics.

As an example I will quote a case that occurred last December. A detachment of the 6th Bengal Cavalry on the march from Calcutta to Lucknow passed through many plague infected areas, and on reaching Benares on December 29th, 1905, one of the sowars complained of fever (103.4) with extreme weakness, and also a swollen gland in the right groin, which had only appeared on the morning of the same day.

I saw him at 6 P.M., his pulse was running and very weak, and the gland extremely painful and tense, I made sure that the condition was one of plague. Under cocaine, I made a two-inch incision through the skin, and exposed the gland, which was found to be extremely hard, this was then cut through longitudinally and cut like kidney substance, serum escaped, which showed the typical bacillus under the microscope, and gave a pure culture on agar. Strong tincture of Iodine lotion about 2½% was freely poured into the wound, and a large fomentation of lint soaked in the above lotion applied. This was changed every 4 hours, and showed a good deal of discharge.

The general treatment consisted of stimulants, and a milk and soup diet, with absolute quiet.

Next morning the temperature was 99.8 and the man felt better.

On January 1st the temperature was normal, and the patient much improved, on January 3rd the temperature rose to 102, but on opening up the wound again with a director, the temperature came down to normal next day, and finally in 3 weeks the patient was allowed up and discharged with the wound quite healed.

The number of cases I have treated in this way is only six and so I feel very diffident in bringing this forward, but all six recovered, and

were proved to be plague cases by bacteriological examination.

There is no doubt that there is a risk to the operator and the attendants who dress the wound by thus setting free plague organisms but with due care this can be overcome.

It is important to note, that the gland must not be excised, but only divided in situ with as little disturbance to its bed as possible, so as not to open up the periglandular spaces, and so open the door to general infection. There appears to be no risk of this if the gland is only cut deeply into as stated.

SOME SURGICAL CASES

By P. GABBETT,

MAJOR, I.M.S.,
Madras

(Concluded from page 326)

RECURRENCE OF STONE THREE YEARS AFTER SUPRA-PUBIC EXTRACTION

A BOY of seven was admitted with stone in the bladder. His parents stated that a stone had been removed by the supra-pubic route four years ago, and pointed to a scar in support of their statement. The same route was adopted on this occasion, and the bladder found fixed to the abdominal wall by scar tissue. This condition, however, added no serious difficulty to the performance of the second operation which was entirely successful. The stone removed was of oval shape and about one inch in its long diameter.

INTRA-PERITONEAL RUPTURE OF BLADDER

A young healthy woman, of the toddy-drinker class, was seen in the out-patients, complaining of pain and swelling of abdomen following a kick two days previously. Examination revealed the presence of free fluid in the peritoneal cavity, while the facial aspect and general condition pointed to the probability of the existence of several internal injuries. The symptoms of hæmorrhage or of well-established peritonitis were absent. Questioning at last elicited somewhat accidentally that no urine had been passed since the receipt of the injury. A catheter was passed, and five pints of blood-stained urine were drawn off evidently from the peritoneal cavity. The patient was at once removed to the operation table, and an incision revealed a ragged vertical rupture on the posterior surface of the bladder reaching almost from top to bottom. Considerable difficulty was found in passing Lembert sutures, so as to close the lower angle of the wound, owing to its inaccessibility and the want of a proper operating table suitable for obtaining the Trendelenburg position.

Subsequent reference to surgical manuals gave the information that the mucous membrane should first be sutured. I venture to say that this would have been almost impossible in this

case and would always be extremely difficult when the rent is other than one limited to the neighbourhood of the fundus

Catgut was used, a proceeding which I now regret. My neglect of silk was due to a wish to avoid the possibility of subsequently separated sutures remaining free in the cavity of the bladder or peritoneum. The bladder was now proved water-tight and an India-rubber tube passed down behind the line of sutures.

An attempt was made to keep a catheter in the bladder, but as it was constantly removed by the patient the attempt was given up.

On the third day there was a suspicion of urine sucked up from the tube by a syringe, and on the fourth day there was no doubt that there was leakage.

On re-opening the abdomen the greater part of the line of suture was found to have given way, probably from absorption or slipping of the catgut. The edges of the tear were ragged, swollen, and so friable that re-suturing was out of the question. The coils of gut in the pelvis were sticky with commencing formation of lymph and slightly adherent to each other.

As a last resource four silkworm gut sutures were passed through the whole thickness of the bladder wall at some distance from the edges of the rent, one on either side of the lower angle and one on either side of the upper angle.

These were then drawn well up in purse string fashion and fastened to the abdominal wall. A rubber tube was passed through the mouth of the so-formed purse into the bladder. The pelvis was then mopped with dry sponges and the abdominal walls sutured as after a supra-pubic extraction of stone. The Magistrate was then sent for and asked to take her dying deposition.

This last step proved unnecessary, as the sinus was healed six weeks afterwards and the patient discharged as cured.

The case appears to me worthy of notice—

(1) On account of the novel method of treating a wound of bladder after failure of primary suture.

(2) The extraordinary tolerance shown by some peritoneums. I admit that had I used silk as I should have done instead of catgut, the case would probably have not presented any features worthy of record.

CAPACITY OF FEMALE BLADDER

A catheter was passed in a case of incarcerated gravid uterus with retention of urine and five pints of urine drawn off. The uterus was then pushed up out of the pelvis with considerable difficulty.

APPENDIX ABSCESS

A case was sent to hospital by Dr. Smith of the Canadian Baptist Mission for uterine fibroids. The fibroid enlargement reached as high as the umbilicus. On the right side was an ill-defined

tender fluctuating swelling reaching from Poupert's ligament almost to the costal margin. A diagnosis was made of an abscess originating in the right uterine appendages. Assisted by Dr. Smith, an incision was made over the swelling and a large amount of faecal smelling pus evacuated. The abscess cavity was quite distinct from the fibroid enlargement and almost certainly originated in the appendix.

Some weeks afterwards, again assisted by Dr. Smith, a hysterectomy was successfully performed. The right broad ligament and appendages showed no sign of old inflammation.

Nothing was seen of the appendix, and for the sake of safety no search was made as to the origin of the abscess.

In my experience appendicitis is a very rare disease among natives, and I should be glad to hear the experience of other medical officers on this interesting question which may have considerable bearing upon the cause of latter day appendicitis in Europeans which has given rise to so many theories and discussions, and I may add to so many operations. Were our ancestors like the native of India comparatively free from appendicitis and adenoids, and if so, why?

HÆMORRHAGIC PERICARDITIS

A middle aged man admitted in a dying condition. The liver was easily felt below the ribs, the left lobe occupying the whole of the epigastric angle and very tender. The cardiac area of dullness was greatly increased extending across the sternum and upwards to the second rib. The heart sounds were feeble, but no murmur or adventitious sounds could be heard. The lungs were normal. The history, so far as it could be obtained, was six months' illness, of which the chief features were hæmoptysis and pain in the epigastrium. The hæmoptysis was said to have been well marked. The patient died within twenty-four hours of admission, and a partial *post-mortem* examination was made.

The pericardium was found immensely thickened and inflamed. When opened, the cavity was found filled with recent blood clot, the lining membrane ribbed and shaggy with brightly scarlet lymph. It was evident that the blood was derived by rupture of newly-formed vessels in the inflammatory tissue. The heart was small and empty, the endocardium, valves and great vessels healthy. The lungs were also free from disease.

I regret that a more complete *post-mortem* could not be made as the following points were not satisfactorily explained—

(1) The enlargement and tenderness of the liver.

(2) The hæmoptysis.

A more complete history might also have thrown some light upon the origin of the pericarditis and the time of onset of the hæmorrhage.

[OVARIAN TUMOUR]

A small wasted woman admitted with the most distended abdomen in relation to her size that I have ever seen. Duration of disease, 18 months. During this period there was a history of having been twice tapped. The distension was so great that it was impossible to say whether the fluid was free or confined, but as it would be necessary to evacuate the tumour in any case, the abdomen was tapped and 31 pints of clear glairy fluid drawn off. When this had been done, four or five large freely movable masses could be felt in the abdomen. The diagnosis rested between ovarian tumour with cedematous secondary growths from the cyst wall or masses of colloid carcinoma of the peritoneum. The next day the abdomen was opened, and assisted by Dr McCormac, I removed as rapidly as possible the wall of an enormous ovarian cyst—very universally, but fortunately nowhere very firmly adherent.

The hæmorrhage was serious, but was checked by pouring hot saline solution into the abdomen. The pedicle presented no difficulties. In the interior of the cyst large sprouting cedematous masses were found. A large rubber drain tube was passed into the pelvis and removed after two days.

A week afterwards the supra-pubic region became distended by a resonant swelling and the temperature rose. A diagnosis was made by Dr McCormac and myself of a localized intra-pelvic abscess pushing up distended intestines against the abdominal wall. An extra-peritoneal incision along Poupert's ligament was made and presently a rush of slightly faecal smelling gas occurred and the tumour disappeared. It was thought that it might have been due to air included in the lax abdomen at the time of closing the incision, but subsequent events proved that it was gas formed by a localized intra-pelvic abscess which escaped by the old track of the drain tube. The drain tube was re-inserted and the discharge gradually lessened until it ceased altogether.

Convalescence was once more interrupted by a severe attack of vomiting which lasted a week, of which the cause was never determined. (As the patient was removed from hospital by her relatives.)

(I have once before removed an ovarian cyst containing over 30 pints, but as it had never been tapped, there were no adhesions, and nothing could have been smoother than the course of the operation and subsequent convalescence.)

I have since heard, however, that she is alive and doing well, so that it is possible that there was no mechanical cause for the vomiting.

It must be remembered that a tremendous extent of raw surface is left by the removal of such an extensively adherent tumour, so that there is every possibility of subsequent kinking or even strangulation of the intestine by bands

and adhesions. At the best the mobility of the intestines must be considerably interfered with.

INFLAMMATION OF CORD FOLLOWING RADICAL CURE OF HYDROCELE AND BASSINI'S OPERATION

Adult male operated in November 1905 for radical cure of hernia on both sides by Bassini's method.

In April 1906 he returned to hospital with a hydrocele on the left side. The results of the former operations, so far as the cure of the herniæ, were perfect. The hydrocele was of medium size and was treated by eversion of the somewhat thickened sac with a few catgut sutures posteriorly. During the next four days the temperature continued to rise progressively, accompanied by considerable pain and swelling of the scrotum. The cord in particular could be felt to be thickened up to the internal ring. The sutures were all removed, but not a trace of suppuration was found. The testicle and cord were seen to be acutely inflamed and thickened. A nick was made in the neck of the everted tunica vaginalis where it appeared to be pressing on the cord, and gauge drainage inserted above and below. A good deal of serum escaped in the subsequent dressings, and the pain and fever entirely subsided within forty-eight hours. The questions of interest that arise are—

(1) Was the hydrocele a result of pressure on the cord due to insufficient room left for it in the closure of the canal?

(2) Was the orchitis the result of the same cause?

(3) Does eversion ever cause orchitis by the pressure of the collar of everted sac round the cord?

(4) Was the orchitis due to both these causes acting together?

I should be glad to hear if any surgeons have had a similar experience.

RETROPERITONEAL TUMOUR

A middle-aged man complaining bitterly of an acutely painful and tender tumour in the abdomen. The tumour was fixed, hard and irregular, but not of stony hardness, situated centrally and pulsating. The pulsation after careful examination was decided to be communicated not expansile.

After due trial of iodide of potash, an incision was made and revealed a retroperitoneal mass of enlarged glands, lymphomatous in appearance (as determined by the removal of a small fragment) tightly bound down beside the aorta. The incision was closed and the patient placed upon increasing doses of arsenic. By the end of a month the tumour had disappeared, and the man left hospital completely relieved of the pain which had been so unbearable as to compel him to beg for operation. No enlarged glands were present elsewhere.

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SEPTEMBER, 1906

THE BED BUG IN THE TRANSMISSION OF DISEASE

It is generally admitted now on all sides that fleas, flies, and mosquitoes are able to carry and do transmit infection of disease. In a recent number of this Gazette we drew attention to the valuable work done by Captain Liston, I M S., regarding the transmission of plague by rat-fleas, and it is fairly well-known that the researches and experiments of the special Plague Commission have practically established the flea-theory of the transmission of plague.

The mosquito theory of malaria, yellow fever and hlaia are too well known to require comment. In the present issue we publish a valuable paper by Captain Franklin, I M S., on the domestic house-fly and its possibilities as a means of transmitting numerous diseases, such as typhoid, cholera, dysentery, tubercle, leprosy, etc. While these household pests have each had their turn and each in turn been studied and condemned, "it is not strange," writes Dr Gerould, "that at last the bed-bug should come in for its share of suspicion and experiment, though rather singular that it should be the last in order."

Last month we published a letter from Dr Goodhul, stating the discovery of the *Bacillus Leprie* in the bed-bug (*Cimex lectularia*) and implicating it in the spread of leprosy.

Captain Patton, I M S., working on the same lines has obtained the fully developed stages of the Leishman-Donovan bodies in the bodies of the same animals. We publish a letter from Captain Patton, asking for a supply of bed-bugs from all parts of India and Assam.

Dr. Lingard, in a letter we insert in the present issue, calls attention to a notice published in the *Lancet* of November 1904, "which was the outcome of a research carried on by Major Jennings, I M S., and myself, the chief points being the presence of flagellate forms in the blood of the peripheral circulation, and the discovery of immature forms of the flagellate in the body cavity of bed-bugs, etc." Dr Lingard's letter is of further interest as he and his coadjutor sent their drawing and specimens to Dr Fritz Schaudinn, which called forth his

opinion that they were in all probability the kala-azar parasite in its earlier forms. The illness and sudden death of Dr Schandinn a few months ago ended any further elucidation of the problem by that high authority.

Although it is only within very recent years that the bed-bug has been convicted of being a transmitter of disease, a study of the history of the pathogenetic relations of these animals shows that as early as 1887, Metchnikoff held that they acted as carrier of infection in relapsing fever. This is believed to be the earliest announcement of the bed-bug theory.

In 1892, Dr Dewevre tried to establish the transmission of tuberculosis by the bed-bug, but the evidence was suspicious. In 1895, M Moian suspected the bed-bug as the causal agent in the spread of cancer. Much experimental work was done subsequently in determining the rôle of insects in the spread of disease, largely with negative results. In 1898, Dr Simond of the Pasteur Institute stated "that the flea and the bed-bug were the two *parasites* which were able to assume a rôle in the transmission of bubonic plague." MM Calmette and Salembui, in 1899, recorded a case of bubonic plague, the infection taking place from bed-bug's bite. In 1899, Dr Coplin of Jefferson Medical College obtained pure cultures of the typhoid bacillus from infected bed-bugs. Nuttall, on the other hand, "critically discussed all the experimental evidence recorded concerning the transmission by bed-bugs of anthrax, bubonic plague, chicken cholera, relapsing-fever and tuberculosis, and concluded that nothing had been positively proved (1899)."

Of recent years many industrious workers have been investigating the bed-bug as a source of danger, more particularly in India and in tropical climates. Already valuable results have been foreshadowed, and if this bed-bug theory of the transmission of leprosy and kala-azar should prove to be true, we are within easy reach of the time when these awful afflictions should be easily preventible. It therefore behoves us,—as medical men with the health of the people entrusted to our keeping,—to advise, direct and insist that the dwellings and homes of the inhabitants of this country, European and Indian, should be cleansed and kept in such condition as to afford no suitable culture medium for the growth and development of the bed-bug. Plenty of most efficient means are now available for its certain destruction, and all that is required

is cleanliness on the part of the people, and instruction on the part of the teachers and leaders of society

THE MEDICAL SECTION OF THE ASIATIC SOCIETY

THE first meeting of the newly-constituted Medical Section of the Asiatic Society of Bengal was held in the Society's rooms on Wednesday, August the 8th, at 9-15 P.M. In the absence of any member of Council other than the Secretary of the section, Major Maynard, the meeting proceeded to elect Lt-Colonel Harris as Chairman, and after a few remarks by him the business of the meeting was proceeded with

In the unavoidable absence of Lt-Colonel Lukis, Captain Megaw showed for him coloured drawings and stereoscopic photographs of a case of the rare skin disease called by Crocker Ichthyosis histrix, together with drawings of a microscopical section showing the disease to be papillomatous in nature, and criticised Crocker's name for the disease. Coloured drawings of the extremely rare disease Unilateral Congenital nævus were also shown

Lt-Colonel Drury showed coloured drawings of the rare red variety of mycetoma, both the naked eye appearances, cultures of different ages and the microscopical characters of the fungus being illustrated

Lt-Colonel Harris showed coloured illustrations of a number of skin diseases, including one resembling the butterfly distribution of lupus erythematosus, but which he considered to be rather of the nature of pityriasis rubor. Raynaud's disease, early leprosy in an European, etc., were also exhibited.

Major Rogers then read a brief historical note on former Medical Societies and Journals in Calcutta. Beginning with the Medical and Physical Society of Calcutta in 1823 which met in the Asiatic Society's rooms and published a series of volumes of Transactions, he traced the history through several short-lived attempts to found medical journals in the first half of the nineteenth century, and through the long series of Indian Annals of Medical Science down to the present day

In spite of a wet evening there was a very fair attendance, and a successful start has been made. The section already numbers nearly fifty members and, according to present arrangements, meetings will be held on the second Wed-

nesday of each month, except during September and October, so that the next meeting will take place in November, by which time it is hoped that a number of medical men in the districts of Bengal will have joined the Society. During the absence of Major Maynard on privilege leave, Major Rogers will act for him as Secretary of the section, and will be glad to put up for election any medical men who wish to join. With the sanction of the Council any technical papers read before the section can be published in a medical journal, such as the *Indian Medical Gazette*. The Secretary will be glad to receive papers for the new Medical Section

SURGEON GENERAL CHARLES SIBTHORPE, C.B., F.R.C.P.I., M.R.I.A., I.M.S.*

WITH keen regret we record the death of this distinguished Indian Medical Officer at the age of fifty-nine years. For the past three years General Sibthorpe had been in a precarious state of health, suffering from chronic nephritis with heart complications, but it was not until March of the present year that his illness became critical while he was travelling in Egypt. With indomitable courage he made his way home through Italy, arriving in Dublin on the evening of Wednesday, May 2, in a very precarious condition. The end came suddenly on the following Friday morning, and he died in his sleep apparently from pulmonary thrombosis.

Born in Dublin in 1847, Charles Sibthorpe was the son and namesake of Charles Sibthorpe, Esq., a man noted for his philanthropy, and a scion of a well-known and much respected family long domiciled in the Irish capital. Educated at the Royal College of Surgeons in Ireland and at the Meath Hospital, Dublin, where he obtained honours, he became a Licentiate of the Irish Royal Colleges in 1869. On April 1, 1870, he joined, as Assistant-Surgeon, the Indian Medical Service, in which he was destined to have a brilliant career, spent for the most part in the Madras Presidency. He acted as Civil Surgeon and Superintendent of the Jail at Banda from July, 1874, to May, 1875. From the latter date to November, 1880, he served as Resident Surgeon to the General Hospital, Madras, as well as Professor in the Madras Medical College. Sibthorpe first saw service in the field in the Afghan war of 1878-1879, in which Roberts'

* From the *Dublin Journal of Medical Science*

famous march on Kandahar took place. He received the Afghan medal and clasp. In 1880 he was elected a Fellow of the Royal College of Physicians of Ireland.

In 1885 and 1886 he served in the third Burmese war, at first under General Sir Herbert Macpherson, and on the lamented death of that distinguished officer he became General Sir Harry Prendergast's right-hand man. In the second year's campaign he had the good fortune to be one of the few medical officers present at the capture of King Thebaw at Mandalay. For his services in this campaign, Sibthorpe received the Burmese medal and clasp, and was honourably mentioned in despatches. In 1886 he was advanced to the rank of Brigade-Surgeon-General. From October, 1882, he served as Fort-Surgeon at Fort St George, Madras, and as Professor in the Medical College. In 1884 he was elected a Fellow of Madras University. In January, 1888, he was appointed full Surgeon to the Madras General Hospital and Professor in the Madras College. He thus in succession held three Professorships in the Madras Medical College, and found time to write an important medical work entitled "Clinical Manual for India." In 1890 he reverted to military duty. From May, 1894 to 1900, Sibthorpe acted as Surgeon-General to the Madras Government, and on the occasion of Queen Victoria's "Diamond Jubilee" in June, 1897, he received the Military Companionship of the Bath. In August, 1900, he retired from the Indian Medical Service.

General Sibthorpe was a Member of the Royal Irish Academy and a Fellow of the Imperial Institute. He was a man of unblemished character and of unsullied honour. Both at home and in India he had hosts of friends. The President, and many of the Fellows, of the Royal College of Physicians of Ireland, paid a last tribute to his memory by attending his funeral on Monday, May 7, when all that was mortal of their friend and colleague was laid to rest in Mount Jerome Cemetery.

Our attention has been called to an important improvement in sanitary appliances in the character of the ware suitable for sanitary vessels. The new "Densitas" ware would appear to be a great improvement on anything of the same nature at present on the market. "Densitas" is dense and hard and non-porous, finished in pale buff and white glaze and is three and a half times stronger than fireclay. It can

be placed on the market at no extra cost over the best fireclay. We consider it would be a very suitable material for the manufacture of sinks, cisterns, water-closets, etc., in India.

Its strength alone is an important element in its favour where native servants are employed, and its hard non-porous character is an immense advantage.

Current Topics.

WE have received the following communication from Capt S. Anderson, I.M.S., and would recommend it to the attention of those intending to avail themselves of study-leave —

In "Current Topics" in the January number of the *Indian Medical Gazette*, a note is given of how men may spend their study-leave at various institutions in London, the courses there indicated being specially adapted for those who are preparing for the higher degree in medicine and surgery.

Owing to the growth of specialism in every branch of medical work and in addition to carry out not only the aim of study-leave, but the spirit of the regulations under which it is granted, it appears to me to be essential that every officer in the Indian Medical Service should become a specialist in tropical medicine and surgery, and at the same time renew his acquaintance, where time permits, with the medical and surgical cases as seen in the practice of a General Hospital.

Our present Director-General has said that "the best school of tropical medicine is India itself," and no doubt many men in their various spheres of labour fully avail themselves of every opportunity to increase their knowledge. The Medical Officer of a Regiment and the Civil Surgeon, who wishes to obtain clearer conceptions of disease in the tropics will, to my mind, spend his study-leave to the best advantage, who apportion part of it to attendance at one of the courses in the London or Liverpool schools of tropical medicine.

The choice of a school is a matter of convenience, since they are both equally good. At the London school there are three sessions in the year and one can either reside in the quarters there or travel up and down from Fenchurch St to Connaught Road daily. The school is situated at the Seamen's Hospital Society's Branch Hospital, near the Royal Victoria and Albert Docks, E. The proximity of the hospital and school to the docks allows of immediate admission, thus affording ready opportunity for the treatment of patients, and for the observation and study of tropical diseases in their acute stages.

At Liverpool the clinical teaching of the tropical school is conducted in the special

Tropical Ward of the Royal Southern Hospital, and the laboratory training is given at the Thompson Yates and Johnston Laboratories of the University, where students and investigators have the advantage not only of specially erected tropical laboratories, but also of the use of the Departments of Animal Diseases (Veterinary Medicine), Bacteriology, Hygiene, Pathology, Bio-Chemistry, and Physiology.

The object of the above schools is not only to acquaint one with the diseases of the tropics, not only to teach how to treat the various ailments one may meet with, but also puts one in the way of investigating tropical diseases, training one to observe, to record, and to study scientifically these great scourges.

Every medical man in the tropics may have to depend upon himself in dealing with the prevention, cure and investigation of disease in that field in which animal parasitology especially plays an important part. Lacking a fair knowledge of this and other important cognate subjects, the tropical practitioner loses much of the interest attaching to his special work, and is unable to treat with the fullest benefit to his patients many of the diseases he may meet with, or to advance our knowledge in regard to them.

At the London school, laboratory work commences at 10 A.M. and continues till 5 P.M. daily interspersed at intervals throughout the session with Lectures on medicine by Sir Patrick Manson and others, whilst the Medical Tutor, Dr C. W. Daniels, a well known observer, gives one the sum and substance of his experiences in various parts of the world. His constant attendance ensures thorough supervision of the work in progress and he can be referred to at all times by workers.

The School Course is recognised by the University of Cambridge, as requisite for their diploma of tropical medicine, and should a sufficient number present themselves, a further course of three months to study hygiene will be arranged for at King's College.

The examinations in tropical medicine and hygiene are held in Cambridge twice yearly, viz., on the 10th January and 15th August.

The examination will have reference to the nature, incidence, prevention, and treatment, of the epidemic and other diseases prevalent in tropical countries. It will comprise the following subjects—

- 1 The methods of pathological and bacteriological investigation. The examination of the blood. The characters, diagnosis, and life-history of animal and vegetable parasites. The examination, chemical and microscopic, of poisonous or contaminated foods and waters.

- 2 The origin, pathology, distribution, prevention, symptoms, diagnosis and treatment of the epidemic, endemic, and other diseases of tropical climates.

- 3 The general effects on health in the tropics of seasons and climate, soil, water, and

food. Personal hygiene, acclimatisation, principles of general hygiene, with special reference to food and water-supplies, sites, dwellings, drainage, and the disposal of refuse. The sanitation of native quarters, camps, plantations, factories, hospitals, asylums, jails, pilgrim and cooche ships. Principles and methods of disinfection.

As evidence of study and attainments a candidate may present to the Syndicate (1) any dissertation, memoir, or other record of work carried out by himself on a subject connected with Tropical Medicine or Hygiene, (2) any Certificate or Diploma in Public Health or Sanitary Science he may have obtained from a recognized examining body.

Such evidence will be considered by the Syndicate in determining whether he is qualified for admission to the examination and by the examiners in determining whether, if admitted, he shall be included in the list of successful candidates. Every candidate will be required to pay a fee of nine guineas before admission or re-admission to the examination.

The examination for the D.T.M. of the University of Liverpool comprises similar subjects to that indicated above, and is held at the end of the autumn, lent, and summer terms. Major Ronald Ross is always pleased to assist members of the service in their studies, and will advise men regarding any special line of investigation they may wish to take up.

The prospectus of the course of instruction at the school and also of the diploma of tropical medicine can be obtained from the Secretary, B 10, Exchange Building, Liverpool.

The remainder of one's time will, I consider, be best spent by attendance on post-graduate courses, where these are available as at the schools in London, Edinburgh or Glasgow. In addition, I recommend men to "walk" the wards of a general hospital and so renew their acquaintance with the general medical and surgical work, and at the same time they will have an opportunity of studying any special subject in which they are interested as *eg* Pathology.

Finally, if a man desires to extend his knowledge of such subjects as gynaecology, eye, ear, throat and nose, etc, he should take the opportunity of attending the out- and in-door departments of a hospital set apart for the treatment of these diseases.

TYPHOID URINE

THE following is the conclusion of a useful paper in the *Journal of Military Surgeons*, U.S.A., by Captain C. S. Butler, Assistant-Surgeon in the Massachusetts Volunteer Militia—

"In the past we have paid much attention to disinfection of the faeces in typhoid fever, in the future we should pay even more attention to disinfection of the urine, both throughout the disease and in all cases even after convalescence, if necessary. The simplest, and at the same time the most effective treatment, so far found,

is the use of urinary antiseptics of the formaldehyde group of drugs, given by mouth. In this way a large element of danger in the spread of typhoid or enteric fever among armies can be effectively abolished."

It has been established that in at least 25 per cent of typhoid cases, the typhoid bacilli exist in the urine, frequently in enormous numbers and even in pure culture. The danger is obvious and puts typhoid urine on a equality of infectivity with typhoid stools.

This must be met with (1) by rigid disinfection of all urine passed by typhoid patients and of night clothes soiled by them, (2) by the routine administration of urinary antiseptics, such as the formaldehyde derivative usually called urotropin. This drug (5 grains thrice daily) should be given early, or even throughout the disease.

HEALTH LECTURES

It is with great pleasure that we publish the notice of a series of four "Health Lectures" arranged for by the Corporation of Calcutta. The first lecture takes place on the 17th September, the subject being "The Calcutta Water Supply." This should be of great interest to all classes of Medical Officers, and we would strongly recommend them to attend, not only this lecture but the whole series.

The following series of lectures will be given at the Central Municipal Office on Mondays, at 5-30 P.M., on the dates below mentioned—

17th September, Monday, "The Calcutta Water Supply," by the Chief Engineer.

29th October, Monday, "Municipal Law and Legal Procedure," by the Acting Secretary.

26th November, Monday, "Vital Statistics," by the Acting Health Officer.

17th December, Monday, "The Calcutta Drainage System," by the Suburban Drainage Engineer.

We have received a small "Pocket Dose Book" compiled by Military Assistant-Surgeon Bonnai of the Medical College, Calcutta. It contains all the B.P. preparations, also those of the colonial addendum to the B.P. and antitoxins. The doses are, as far as possible, written up in group-form so as to enable the student to learn them more easily. We can recommend the little book very strongly to students and physicians as it is cheap, easily carried about and accurate, containing a large amount of information in a very concise form.

The awards to the British Section of the recent Liège Exhibition were distributed on June 13th. The proceedings took place at the Mansion House, and the Lord Mayor, Alderman W. Vaughan Morgan occupied the chair.

Mr. Imre Knauff, the British Commissioner-General, read a report upon the Exhibition, and

the meeting was subsequently addressed by the Belgian Minister, Count de Lalaing, Sir Albert Rollit, M. Edouard Seve, Sir William Holland, and the Lord Mayor. The Diplomas were then presented by Count de Lalaing. A notable feature of the ceremony was the receipt by Burroughs, Wellcome & Co., of five awards of Grand Prix, three Diplomas of Honour, three Gold Medals and one Silver Medal.

Reviews.

Lectures on Midwifery for Midwives.—By

A. B. CALDER, M.B., M.R.C.S., Lecturer on Midwifery to London County Council, to St. Mary's Midwifery Training School, Fulham, to St. Clement's Maternity Home, Fulham, etc. London: Baillière, Tindall and Cox 1906 pp. xii+274. Illustrations 153. Demy 8vo. Price 5s. net.

THIS book consists of a series of lectures as given by the author to his classes of midwives. It contains everything that is essential for a midwife to know, and is not burdened with non-essential details. The teaching is sound, and the treatment recommended practical and thoroughly up-to-date in all particulars. We note the author still gives the old description of the development of the decidua reflexa, but doubtless this is an oversight and will be corrected in future editions. The chapter on Asepsis is particularly clear and well written and puts the matter most simply and concisely.

A very useful appendix has been added of "Notes on Rules of Central Midwives' Board." We can cordially recommend the book to all those studying for a Midwifery Diploma, and it will also prove most useful to those whose duty it is to lecture to such students. It is quite the best and most up-to-date work of its class with which we are acquainted. The illustrations as a whole are somewhat crude and some of them are by no means clear. With this exception, the general printing, binding, and get-up of the work leave little to be desired.

The Nature and Treatment of Cancer.—

By J. A. SHAW-MACKENZIE. Third Edition. Pages xii+99. Crown 8vo 2s 6d net. Baillière, Tindall and Cox, 8, Henrietta Street, London.

THE second edition of this book was so recently reviewed in these columns that there is little more to be said about the present one. Some cases have been added, which have been undergoing treatment with trypsin, and the accumulating evidence in favour of the glycogenic theory of cancer and its relation with diabetes, is also included. So far the treatment has only been tried in inoperable cases, it would certainly be worth a trial after operation, with the possibility of diminishing the likelihood of recurrence.

Anæsthetics—A practical handbook by J BLUMFELD, M.D. Pages viii + 118 Illustrations 15 Crown 8vo 2s 6d net

THIS little book is primarily intended for students up for their final examination and sets forth the principles of administration of the various anæsthetics, and does not pretend to be an exhaustive treatise on the subject.

The first chapter describes the nature and action of the various drugs employed for the production of anæsthesia and then the method of employment of the four common anæsthetics, *ie*, nitrous oxide, ether, chloroform and ethyl chloride, followed by a chapter on their use either in succession or when given together. The description is clear and concise. In the administration of ether the author uses rather more than is the usual custom.

The disadvantages and dangers arising from the administration of chloroform are fully dwelt upon. But perhaps those of ethyl chloride—which, considering its recent introduction and the number of deaths already recorded resulting from its administration cannot be considered negligible, are not quite sufficiently emphasised.

In other chapters the question of the choice of an anæsthetic, the dangers and troubles which may arise during its administration and the position of the patient are ably discussed.

In conclusion, the book amply fulfils the purpose for which it is intended, but in this country where there is practically only one anæsthetic, *ie*, chloroform, a good deal of the contents will not be of much practical use to students.

The Urethrotomies and Kidney Capsulotomy—By REGINALD HARRISON, F.R.C.S. John Ball, Sons and Danielsson, Ltd, Great Titchfield Street, London. Price 2s 6d.

THIS volume is composed of some recent clinical lectures. Internal urethrotomy is first discussed. Maisonneuve's instrument is preferred and in the after-treatment a catheter is tied in, this is considered to be a most important factor. The occasional passage of a bougie is not attended with equally good results. Stress is laid upon the necessity for correctly adjusting the catheter, so that neither too much nor too little of its length is within the bladder.

With regard to Wheelhouse's operation, its use is confined to cases when there are sinuses and the perineum is one mass of cicatricial tissue.

In extravasation cases a combined internal and external urethrotomy is performed, the latter not being considered enough, and a tube is introduced into the bladder. The importance of emptying the tissues of the extravasated urine by squeezing is emphasised. This operation is also performed in cases with multiple extensive fistulae, which are themselves left untouched.

In cases of ruptured urethra, suturing of the urethra is considered not to have any advantages over perineal section and drainage.

Other chapters deal with perineal urethrotomy for stone, prostatectomy and prostatic calculus.

The final section is on kidney capsulotomy, it includes a sketch of the history of the operation with an account of some of the earliest cases of the author's who was the first surgeon to perform this operation.

The operation is only to be performed in certain exceptional cases, and simple capsulotomy is preferable to decapsulation of the organ.

The book is very readable.

Gastric Surgery—By H. J. PATERSON, F.R.C.S., Eng. Pages viii + 180 Illustrations 5 Plates 2 Demy 8vo 6s net London Baillière, Tindall & Cox.

THIS book contains the Hunterian lectures which were recently delivered. The first lecture deals with gastro-jejunostomy, the method preferred for its performance is that with a double row of continuous sutures, the inner layer penetrating all the coats of the viscera united. The use of Murphy's button is condemned. A series of four cases, in which gastro-jejunostomy had been performed, was examined from the point of view of the effects of the operation upon metabolism, the results showed remarkably little difference as compared with that of a normal subject. These observations are of interest since the previous work was done in 1897 by Joslin and had not been repeated. Joslin's cases were suffering from carcinoma, Mr. Paterson's were not.

The author is strongly in favour of the anterior method of performing the operation and gives his reasons for this view, the posterior method, however, has the support of those who have performed the larger individual number of operations, but the recent correspondence in the *Lancet* shows that the question is not yet finally decided.

The treatment of gastric ulcer with its complications and gastric carcinoma is included in the remainder of the lectures. A number of tables are given, showing the results of the various operations treated of.

Surgery, its Theory and Practice—By W. J. WALSHAM, M.B., CM., F.R.C.S., and WALTER G. SPENCER, M.S., F.R.C.S. London Messrs J & A. Churchill, 1906. Ninth Edition, pp. xiv + 1261, with 24 Plates and 596 Illustrations. Price 18s net.

MR WALSHAM's untimely death in 1903 has left his colleague Mr. Spencer the task of bringing out the ninth edition of this deservedly popular text-book of surgery. From its first appearance in 1887 it has taken a leading position and has been a favourite with teachers and students. Nine editions in nineteen years tell how true this statement is and shows also how hard the author worked to keep the book

up to date In Mr Spencer's hands it has undergone no change except in the direction of improvement While maintaining the form and character of the work many new illustrations have been added, many sections re-written, whilst descriptions of some methods now little used have been omitted Mr Walsham's text-book is an excellent one in every way and especially useful to the student and young practitioner The author believed in the general surgeon as preferable to the minutely differentiated specialists The student who masters this book backed up by plenty of practice will be a good all-round surgeon and have a good general knowledge of diseases of the eye, ear, nose, throat and deformities that will stand him in very good stead in practice The publishers have done their work very well and are to be congratulated on their share in the production of the book

Clinical Bacteriology and Hæmatology for Practitioners—By W D'ESTE EMERY, M D
Lewis Practical Series 2nd Ed, 1906

WHEN the first edition of this book was published we called attention to its excellence, and our good opinion has evidently been shown by others for within a short time a new edition has appeared The second edition is rather a new book and forms one of Lewis' excellent "Practical Series" The present volume is very well got up, it is considerably larger and more useful than the previous volume, one large portion dealing with hæmatology has been added and many other additions have been made The first section deals with apparatus, media, cultures, use of microscope, &c The second section deals with the diagnosis by bacteriological method of various diseases The third section is on the examination of morbid products, pus, sputum, gastric contents, pleural fluid, collection of blood, cultural examination, the opsonic power of the blood, section cutting, staining The new section on blood examination is particularly good, and the chapter on cyto-diagnosis very useful We commend the book to all interested in modern methods of diagnosis It is an admirable hand book for the busy civil surgeon in India

Correspondence.

PERMANGANATE TREATMENT OF SNAKE BITE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Twenty five years ago at least, permang potass was used in hypodermic injection form in cases of snake bite, but abandoned as a failure. At present it is used by direct application to the part bitten, with a view, no doubt, to disorganise the poison, and the results are most encouraging, judging from reports in the *I M G* It is some five years at least since I conceived its possibilities in regard to bites by hydrophobic dogs, on dogs, and I am able to put forward 14 cases, with 13 successes They were bulls and terriers In four instances the test was very good, occurring at differ-

ent times, as a sequence of mad pariah biting two dogs. Both the injured animals were placed under restraint one being treated and the other left alone, the former recovered in each instance, the latter developed the disease The period of incubation varied from 10 to 22 days, except one in six, and another in 25 days The single failure became hydrophobic in seven days, and did not form one of the group where two dogs were bitten The thirteen that recovered never exhibited symptoms of any kind, they were cheerful with normal appetites A few of the cases did not come under treatment for two days, but the method adopted throughout was the same, viz, first thoroughly bathe the animal in a 1 per cent solution so that hidden marks or scratches are brought in contact Search out all wounds, and rub in dry permang powder with a cloth button, and let it remain there Whether this is sufficient, or would have effected all purposes I am not prepared to say, but I resorted to hypodermic injections, one a day for ten days varying from 2 to 4 grs according to the size and weight, with more experience I have reduced the injections to 5 only The part selected was the flanks alternately, in several dogs, the glands in the flanks became very enlarged, and painful, slightly inflamed, and then indurated for 14 to 30 days, but never suppurated The animal was kept under chain for six weeks On the next opportunity I will omit the injection, because, if the powder alone is all that is necessary, and where the dogs had remained unattended for two days it shows absorption to be very protracted This remedy might prove useful in human beings at least as a first aid I believe it preferable to nit silver, or fuming nitric acid Some time ago a sweeper woman came to me half an hour after her forearm had been badly torn by a rabid "pi" I took the greatest care in thoroughly cleansing all parts, then poured in pure nitric acid leaving it long enough to destroy the surface of all tissue, re washed parts, and dressed with iodoform ointment. On the eighth day she became violently hydrophobic and died two days later

Yours, etc,

A L F MCCABE DALLAS,

D M & Ch, L M, L R C P I

13th May 1906

IRRIGATION IN CATARACT

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—We in Burma, who can only count our cataract operations by hundreds, feel somewhat diffident in writing on the subject, and when we do so, consider it presumption to dare to criticise those who count their operations by thousands Like Saul we fancy we hear the refrain "Saul hath slain his thousands, and David his ten thousands" My chief object in writing is not to criticise, but to thank Major Elliott for bringing Professor McKeown's apparatus and methods to our notice Since I read his article in the *I M G* of April 1903, I have used the apparatus as a matter of routine, and wonder that it is not more generally used It is difficult to think, with Dr Wanless, that the reason is its complexity, for a simpler instrument, to my mind, has never been devised, and, if properly sterilized at the outset, it is absolutely safe. The charm of it lies in the fact that, with a fairly intelligent assistant, to hold the bottle, the nozzle, rate of flow and amount of fluid are so completely and easily under the operator's control The saline solution in the bottle can also be kept at the temperature required, and all air coming in contact with the fluid in the bottle is filtered through the cotton wool in the bulb These, I imagine, are important items Since I began to use the irrigation method, results have been so satisfactory that I do not feel keen on changing my plans for "extraction within the capsule" I have never found prolonged irrigation do harm, and I do not hesitate to use the method with nervous patients It would be interesting to learn what is meant by successful cases What is the minimum amount of vision allowed to count as a successful result by Majors Herbert, Smith, Elliott and other writers It would also be interesting if some one who has the leisure would draw up a comparison of results between "extractions with intracapsular irrigation" and "extractions within the capsule" The cases should not be those of one operator, but of several

MANDALAY, }
UPPER BURMA }

Yours truly,
W G PRIDMORE,
MAJOR, I M S

THE SPREAD OF PLAGUE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In the able and instructive article on the spread of plague by Major S Browning Smith, I M S, in the special plague number, the author states the case with such lucidity and completeness, that it almost appears that we have attained to the fullness of knowledge in respect to this much debated

subject. Perhaps, of all the difficult problems connected with plague, the one which has taxed the ingenuity of investigators most, has been the discovery of a satisfactory explanation for the seasonal variation that is so characteristic of the incidence of plague. The difficulty has been to find the causes for the gradual onset of the disease in the autumn, the lull in the cold weather, the increase of activity in the spring, and the startlingly rapid drop in the early summer—so marked in the Punjab that it is well known to take place at a definite period, viz, the second or third week of March. It is in connection with this point that I wish to offer a few remarks. Major Browning Smith explains this on what is, I believe, a new theory, which, if it should be correct, forms an advance in our knowledge of considerable interest and no small importance.

In short it is to the effect that the seasonal prevalence of plague is dependent on, and largely determined by, the prevalence of the rat flea.

In order that this should be so, it follows that what Major Browning Smith called "the flea curve," must correspond with the curve of plague incidence.

Is this so? Major Browning Smith is of opinion that it is. He states: "The variations in the flea prevalence in the Punjab plains is as follows. The flea begins to appear after the summer rains increasing in number as the weather gets cooler becoming very prevalent in the autumn, then as the weather gets cold they are less in evidence, and in the middle of winter are comparatively few, as the weather gets warmer again they appear in increasing numbers, and in the spring become more numerous than at any other time of the year. With the advent of the hot weather they get rapidly fewer, until it seems as if they practically disappear altogether during the summer months. This corresponds exactly with plague activity."

If this represents the case accurately, then little remains to be said, but in connection with the difficult subject of the natural history of fleas when, as Major Browning Smith says, our knowledge is so limited and so difficult to acquire, it is permissible to entertain doubts. As bearing on the question of rat fleas, Liston has suggested the comparison of these with dog fleas, concerning which it is not so difficult to carry out observations.

I too have a dog, and my observations on this animal during the last 2½ years in the Punjab plains do not bear out the above quoted passage.

Fleas have each year began to be prevalent about the time of the rains, in July increasing in number as the autumn advances, being worst in September, and gradually disappearing as the cold weather commences and so far from being most plentiful in the spring have not been present at all, or in such small numbers as to escape detection.

Major Browning Smith also states—'We have in the Punjab two seasons of the year—the autumn and the spring—in which all forms of life manifest special activity, there are two harvests for instance two seasons when roses bloom, two seasons when flies, mosquitoes, and all kinds of insect-life are most in evidence. Even if we have no definite facts concerning fleas to go on it would be safe to assume that the flea would also conform to the natural laws so evidently acting on other forms of life.'

I find myself unable to subscribe to this entirely. When do flies begin to be troublesome? I think most people in the Punjab would promptly answer at the commencement of the hot weather. When are mosquito curtains necessary? When is the malarial season? Again the answer appears to be without doubt, during the hot weather and rains, assuredly they are not at their worst in April and May. August and September are notoriously the unhealthy months chiefly due to the prevalence of mosquitoes and malaria at this season.

Again, when do the white ants invade the soup? When is nature most prodigal of insect-life? Why, during the rainy season, which in the Punjab, lasts from July to September.

Roses it is true bloom twice in the year, but in my opinion in Gilbertian language "The flowers that bloom in the spring tra la!" have nothing to do with the case."

I therefore, with respect beg to differ from the view that the prevalence can entirely be the cause of the seasonal variations in the incidence of plague, though, of course, they are a necessary factor in the transmission of the disease from rat to man.

I am of opinion that in the Punjab insect-life in general (and perhaps the rat-flea also) is present all the year round but the time of greatest prevalence is during the rainy season. I would suggest that in accordance with the almost invariable law of nature the chief breeding season of fleas is in the spring, that at this time the eggs are deposited, and that having reached the pupa stage, they await the advent of the rains before the imago or perfect insect appears.

The specific agent of the disease, the bacillus pestis, is a living organism, and appears to me to be worthy of some slight consideration. Has it no individuality, in this respect differing from other organisms of a like nature? No on the contrary it is noted for the ease with which in cultures, it

forms involutions forms. This suggests at least that it is not entirely an inert body, the spout of fleas and rats.

Is it not possible that those conditions of temperature, humidity, subsoil, water, etc., which Major Browning Smith has so clearly shown have a marked effect on the plague incidence, may act in another way, may, in short, affect the organism or its environment directly, and only incidentally favour the rat flea? I am not able to give any opinion on the point, and indeed offer the above remarks with all diffidence.

I am, Sir,

Yours faithfully,

O ALLOCHIN GILL,

LIEUT., I.M.S.

August, 1906

AN APPEAL FOR BED BUGS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—May I ask all Medical Officers and others who will see this letter to send me specimens of bed bugs from their Districts. Bugs are best sent in a circular tin box, whose lid is finely perforated throughout. A few pieces of crumpled blotting paper well moistened should be placed in the bottom. Thirty or forty adult bugs should be dropped on to the paper, when they will soon secrete themselves in the folds. Bugs sent this way will come to no harm. Many will remain alive and ovulate. The tin box should be surrounded with gauze and tied firmly. A letter should accompany the specimens, stating where the bugs were obtained, and any notes such as prevalence habits, etc., will be most valuable. Specimens are particularly needed from Assam and the whole of Northern India and Bengal. Parcels should be sent to me at the King Institute, Gundy, Madras.

I am, etc.,

W S PATTON,

CAPT I.M.S.

MADRAS,

The 10th August 1906

To The Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In the July number of your issue just received, under the heading of "Bed Bugs and Leishman Donovan Bodies", it is stated that "Captain Patton working at Leishman Donovan infection cases (Kala Azar) in Madras has found it quite common to find the Leishman Donovan bodies in the blood taken by bed bugs fed on Kala Azar cases, whereas in the bed bug the actual development of the parasite up to the flagellate state can be followed."

In the first place, I would recall the fact that a paragraph appeared in the *Lancet* of November 12th 1904, page 1367, recording the discovery of flagellate forms in the peripheral blood of human beings.

This notice was the outcome of a research carried on in the United Provinces by Major E. Jennings, I.M.S., and myself with regard to a disease in human beings, exhibiting peculiar symptoms during the months of September—November 1904.

The chief points of interest being the presence of flagellate forms in the blood of the peripheral circulation, and the discovery of immature forms of the flagellate (circular, pyriform bodies) in the body cavities of bed bugs, and further it was proved that the causal agent was carried from man to man by the *Cimex lectularius* (L).

Before publishing any detailed results, my coadjutor and myself agreed to wait the advent of a second autumn season, in order to take advantage of any fresh cases of the disease which might occur during 1905 but in the meantime to lay the facts arrived at and the drawings of the organisms before Dr. Fritz Schaudinn, and ask him for his opinion with regard to the forms of flagellate and immature forms of the organisms submitted.

In October 1905, I wrote to the late Regierungsrat, laying all the facts before him, and particularly drew his attention to the probable similarity of these flagellates to those described by Nipher, and to the bed bug being the chief source of danger, as a carrier of the causal agent of the disease. This latter point will be observed in the following sentence which has been copied from my original letter.

"Die Hauptinteresse mit Bezug auf die menschlichen Krankheiten ist, dass sie von Person zu Person übertragen zu werden schienen durch die "*Acanthia lectularia*" Linn "*Cimex lectularius*, L." In a letter now before me written on the 3rd January 1906, the late Dr. F. Schaudinn wrote, "Your illustrations have aroused my warmest interest. That we have to do with a new form of parasite is very probable, could it not be an earlier form of Kala Azar parasite?"

"Before these (parasites) settle down in the spleen they must have once been in the peripheral blood. The trypano somata, as per illustration, A to D, remind me very much

of those species of Kala Azar parasites cultivated by Rogers whilst F to G, although they bear a likeness to the Tropical Malaria parasites, could be such forms as those described by Laveran and Meslin, as human *Piroplasmata* (alias Kala Azar parasites)."

"Your observations are so very interesting and important that on receipt of the microscopical specimens, I shall be very pleased to give you my matured opinion with regard to this question."

Accordingly, all the microscopical specimens, drawings, &c., bearing on this question were forwarded to Hamburg in January 1906, but unfortunately the illness and premature death of this illustrious scientist, has rendered any further elucidation of this subject impossible by the mind of that vigorous, enlightened, far seeing and altogether specially trained zoologist

I am, Dear Sir,

Yours faithfully,
ALFRED LINGARD

[We copy the reference from the *Lancet*, 12th November 1904 —

'We have received a cablegram from Muktesar in the Punjab stating that Dr Lingard and Dr Jennings have discovered trypanosoma in the peripheral circulation of human beings. This is a statement of considerable interest as hitherto the chief investigations in regard to the parasites have been made in reference to sleeping sickness and the trypanosomes were only found in the blood of those natives residing in areas in which the disease was endemic

As will be seen, the construction and interpretation of the cablegram by the *Lancet* is very different to what Dr Lingard now claims in his letter

No mention of the bed bug as a source of infection occurs in the *Lancet's* notice so that we may take it that the announcement by Captain Patton of the discovery of flagellate forms of the Ichishman Donovan bodies in the bed bug is the first public notice of the event. We shall await with much interest confirmation of the discovery —ED—]

THE NEW RULES AND REGULATIONS FOR THE MEDICAL FACULTY OF THE CALCUTTA UNIVERSITY

Chapters XLIV to XLVI of the Regulations are occupied with the three examinations leading up to the degree of Bachelor of Medicine. Regarding the duration of this course there has been great difference of opinion and several conflicting considerations had to be borne in mind. On the one side it is urged that before a medical student can be regarded as qualified to practise his profession he must have devoted (1) an entire year to acquiring an adequate knowledge of the preliminary scientific subjects of Inorganic Chemistry, Botany, Physics and Zoology, (2) two years to the study of Anatomy and Physiology, (3) at least three years to practical work in medicine and surgery in a recognised hospital. If it is accepted, on the authority of expert opinion, that these periods cannot be reduced without sacrificing professional efficiency, it follows that the medical course must extend over six years from the time when the student's general education has reached the point at which it is possible for him to enter with advantage upon his technical studies. Hitherto he has been held to have reached this point on passing the First Examination in Arts, for this was considered the earliest stage at which he could have a sufficient command of English to enable him to follow lectures delivered in that language. Assuming this condition to be maintained, it is urged on the other side that the introduction of a six years' course for the degree of Bachelor of Medicine would bear hardly upon the student, since it would defer the time at which he could begin to practise his profession, and might look forward to earning a living, until the age of 24 or even later. The argument merits serious consideration, and its weight was recognized by the Senate who recommended the retention of the five years' course. In their anxiety, however, to render this course as efficient as possible they overloaded it with such a multiplicity of subjects and lectures that their scheme of study could not by any possibility be compressed into the time allotted to it. Their proposals were open to the further objection that they did not allow a candidate who had passed the Intermediate Examination in Science that relief from purely scientific studies to which he would be legitimately entitled.

The Committee were thus called upon to reconcile the modern demand for a high standard of professional efficiency with the reasonable plea, advanced on behalf of the students that they should not be unduly delayed in entering upon the work of their lives. This they have done by providing (1) that students who have passed the Matriculation Examination shall be permitted, as is the practice in the University of London, to proceed at once to a Medical degree, (2) that for such students the period of study shall be six years, (3) that the period shall be reduced by one year in the case of students who have passed the Intermediate Examination in

Science before taking up the Medical course. The practical effect will be, that if a student passes his Matriculation Examination at the age of sixteen, he will be able to engage in the pursuit of his profession when he is twenty two, or a year earlier than is now ordinarily possible. If, however, he postpones his decision to embrace a medical career until after he has passed the Intermediate Examination in Science, he cannot begin to practise until he is twenty three.

The settlement of this vexed question arrived at by the Committee was indicated by the reforms which they had introduced in the Matriculation Examination. The standard now prescribed at this stage is in no way less advanced than that of the Preliminary Examination which the General Council of Medical Education of the United Kingdom requires candidates to pass before they can be registered as medical students. It demands in effect from the students a sound practical knowledge of the English language and may therefore be expected to enable them to follow the lectures of their professors with less difficulty than is now the case even with those who have passed the First Examination in Arts. If this hope is realised, there is no reason why a student should not enter upon his medical studies immediately after Matriculation.

The Preliminary Scientific L M S Examination in accordance with the existing Regulations and Rules shall be held for the last time in 1907, and for this purpose those Regulations and Rules shall be deemed to be in force.

The First L M S Examination in 1907, 1908 and 1909 (and in no subsequent year) shall be held in accordance with the existing Regulations and Rules, which, for this purpose, shall be deemed to be in force.

The Second L M S Examination in 1907, 1908, 1909, 1910 and 1911 (and in no subsequent year) shall be held in accordance with the existing Regulations and Rules, which, for this purpose, shall be deemed to be in force.

Any candidate who fails in the Preliminary Scientific L M S Examination in 1907 may appear at the Preliminary Scientific M B Examination in 1908 or 1909, provided he attends in an Affiliated College a regular course of lectures for one academical year in the subjects in which he has failed as also in the additional subjects in which he has not previously attended any lectures. If any such candidate attains the standard laid down in the new Regulations, for the Preliminary Scientific M B Examination, he shall be declared to have passed that examination.

Any candidate who fails in the First L M S Examination in 1909 may appear at the First M B Examination in 1910 or 1911, provided he attends in an Affiliated College a regular course of lectures for one academical year, (i) in the subjects in which he has failed, (ii) in any additional subjects in which he has not previously attended any lectures, and (iii) in the subject of Zoology as prescribed for the Preliminary Scientific M B Examination under the new Regulations. If such candidate attains the standard laid down in the new Regulations for the First M B Examination and also passes an examination in Zoology in the standard of the Preliminary Scientific M B Examination, he shall be declared to have passed the First M B Examination.

Any candidate who fails in the Second L M S Examination in 1911, may appear at the second M B Examination in 1912 or 1913, provided he attends in an Affiliated College a regular course of lectures for one academical year in the subjects in which he has failed. If such candidate attains the standard laid down in the new Regulations for the Second M B Examination (Parts I and II or Part II only as the case may be), he shall be granted a certificate of having passed the Second L M S Examination.

The Preliminary Scientific M B Examination shall be held for the first time in accordance with the new Regulations in 1908. Provided that at the Examinations held in 1909 and 1910 no one shall be admitted who has not passed the F A Examination or the Intermediate in Arts or the Intermediate in Science.

The Preliminary Scientific M B Examination in 1907 and 1908 shall be held in accordance with the existing Regulations and Rules, which, for this purpose, shall be deemed to be in force.

In 1908 there shall be two Examinations, one in accordance with the existing Regulations and the other in accordance with the new Regulations. For the latter no one shall be eligible who has not passed the F A Examination.

The First M B Examination shall be held for the first time in accordance with the new Regulations in 1910.

The First M B Examination in 1907, 1908 and 1909 shall be held in accordance with the existing Regulations and Rules which for this purpose shall be deemed to be in force.

The Final M B Examination shall be held for the first time in accordance with the new Regulations in 1913.

The Second M B Examination in 1907—1912 shall be held in accordance with the existing Regulations and Rules, which for this purpose shall be deemed to be in force.

The Examinations for Honours in Medicine, for the Degrees of Doctor of Medicine, Master of Surgery and Master of Obstetrics, and for the Diploma in Public Health,

shall be held for the first time in accordance with the new Regulations in 1907

The Examination for the Degree of Doctor of Medicine in 1906 shall be held in accordance with the existing Regulations, which, for this purpose, shall be deemed to be in force

PRELIMINARY SCIENTIFIC M. B. EXAMINATION

Inorganic Chemistry	40 lectures
Physics	20 lectures
Zoology	20 lectures
Botany	20 lectures

FIRST M. B. EXAMINATION

Anatomy	100 lectures
Physiology	80 lectures
Pharmacology	80 lectures
Organic Chemistry	15 lectures

FINAL M. B. EXAMINATION

Medicine	100 lectures
Mental Diseases	8 lectures
Surgery	100 lectures
Ophthalmology	15 lectures
Midwifery	80 lectures
Medical Jurisprudence	40 lectures
Hygiene	20 lectures

In the Medical Course there shall be in addition to the lectures specified above practical Courses as prescribed by the Syllabus

If a College fails for three consecutive years to deliver the minimum number of lectures prescribed above in any subject, proceedings shall be taken under section 24 of the Indian Universities Act to withdraw from it the privileges of affiliation in that subject

Every lecture shall cover a period of not less than 45 minutes inclusive of the time allowed by the College Rules for the assembling of the students

For the purpose of these regulations a period of practical work or class exercises or class examinations of not less than 45 minutes shall be considered to be equivalent to a lecture

Every candidate who desires to appear as a collegiate student at any one of the examinations mentioned in section 1 shall be required to prosecute a regular course of study for the time specified in the regulations in the subjects which he takes up for the examination in question

No student shall be considered to have prosecuted a regular course of study in any subject for any examination unless he has attended at least 75 per cent of the lectures delivered in that subject in one or more affiliated Colleges

No lecture shall be deemed to be a lecture within the meaning of these Regulations, unless it is delivered to a whole class or permanent section of a class, and unless it is reckoned in calculating the percentage of attendance of all students of the class or section who have taken up the subject in which the lecture is delivered

If the College to which the student belongs is not affiliated in a particular subject which he desires to take up for examination, he may be permitted, by mutual arrangement between the Principals of the Colleges concerned, to attend lectures on that subject in another duly affiliated College

The percentage of attendance of every student under section 5 shall be calculated on the total number of lectures delivered in each subject from the commencement of the academical year. If a student is transferred from one College to another the percentage of attendance in the first College shall be calculated on the total number of lectures delivered in each subject up to the date borne on the transfer certificate, and in the second College, on the lectures delivered after that date

In cases where a student, after study for the period prescribed by the Regulations, shall have failed to attend 75 per cent of the lectures in any subject or subjects during this course, he shall not be admitted to the examination as a collegiate student, unless (a) he attends lectures in such subject or subjects for another academical year, and (b) his attendance in the subject or subjects in question for the period prescribed by the Regulations amounts to at least 75 per cent of the lectures delivered in the College or Colleges in which he studied for the prescribed period

If a candidate for any of the examinations mentioned in Regulation II does not present himself at the examination immediately succeeding the completion of his regular course of study, he may appear at any of the two following examinations of the same standard provided that he produces, in addition to the ordinary certificate or certificates required by the Regulations, a certificate from the Principal of the College at which he last studied or from a member of the Senate testifying to his good character during the intervening period

If such candidate desires to present himself at any subsequent examination he shall be required to prosecute a fresh course of study for the full period in accordance with the Regulations

PRELIMINARY SCIENTIFIC M. B. EXAMINATION

1 Any undergraduate of the University may be admitted to this examination provided he has fulfilled the following conditions

- That he has passed the Matriculation Examination, and
- That he has completed, since passing the Matriculation Examination, a regular course of study, theoretical and practical in the subjects for the examination, for one academical year in a college affiliated to the University for this purpose

2 The Preliminary Scientific M. B. Examination shall take place once in each year. Every candidate for admission to this examination shall send to the Registrar his application with a certificate in the form prescribed by the Syndicate, and a fee of Rs 10 at least fourteen days before the date fixed for the commencement of the examination. A candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee. A candidate may be admitted to one or more subsequent examinations on payment of a like fee of ten rupees on each occasion provided that after three failures he shall not be admitted to the examination except on the special recommendation of the Principal of the College

3 Every candidate shall be examined in the following subjects—Inorganic Chemistry, Physics, Botany, and Zoology (one paper in each). The examination shall be written, oral and practical, three hours being allowed for each paper in each subject

4 As soon as possible after the examination, the Syndicate shall publish a list of successful candidates arranged in alphabetical order. Every candidate shall on passing receive a certificate in the form entered in Appendix A

5 The course of study for the Preliminary Scientific M. B. Examination shall be—

INORGANIC CHEMISTRY

Theoretical

Chemical and Physical changes, Laws of Chemical action. Indestructibility of matter, the balance, weights and measures. Elements and compounds, Classification of the elements, Periodic Law. Atoms and molecules, symbols and formulae, valency, equations, atomic weights, molecular weights

Laws of Chemical Combination and Dalton's atomic theory, Avogadro's law

Calculation of formulae from percentage composition, and calculations relating to weight and volume.

Study of the following—

Oxygen, oxides, acids, bases and salts, chemical terminology and Nomenclature. ozone, allatropy, isomerism, metamorphism and polymerism

Hydrogen, water, its composition by synthesis and analysis, impurities of water, hard and soft water, elements of water analysis, mineral water. Peroxide of hydrogen

Nitrogen, nitrogen, atmospheric air, nitric acid, oxides of nitrogen, nitrites and nitrates, ammonia and ammonium salts

Carbon, its oxides, Relation of Co, to animal and plant life, coal and coal gas, combustion, structure of flame. cyanogen, hydrocyanic acid and metallic cyanides

Chlorine, bromine, iodine, fluorine, their compounds with hydrogen and oxygen, hypochlorites, hypobromites, chlorates and iodates

Sulphur, its oxides, sulphurous acid, sulphuric acid, hyposulphurous acid, and their salts. carbon disulphide

Phosphorus, oxides and oxyacids of phosphorus, phosphates, phosphuretted hydrogen

Boron and silicon, their oxides, boric acid and borax, Silicic acid, dialysis, glass and porcelain

Occurrence in nature, sources and preparation of the following metals and metalloids and their principal compounds, omitting metallurgical processes

Arsenic, antimony, bismuth, tin, platinum, gold, silver, mercury, copper, lead, manganese, chromium, iron, aluminium, zinc, magnesium, calcium, strontium, barium, lithium, sodium, potassium. Special attention will be paid to the general properties and reactions of compounds of medicinal and medico legal importance and their methods of detection

During the above course, the common laboratory processes such as mixture, solution, crystallisation, dissolution, distillation, electrolysis, evaporation, precipitation, filtration, decantation (siphon), desiccation, decomposition, separation, oxidation, reduction, and neutralisation, will be demonstrated.

Practical

Fitting up of simple apparatus
Use of burettes, pipettes &c
Use of the chemical balance

Performance of experiments involving solution, filtration, distillation, crystallisation, oxidation and reduction

Determination of the water of crystallisation of hydrated salts

Preparation and study of the principal properties of hydrogen, oxygen, nitric acid, ammonia, carbon dioxide, hydrochloric acid, chlorine, sulphur dioxide, sulphuretted hydrogen

Experiments showing the composition of water by electrolysis and of air by burning phosphorus

Qualitative analysis of a simple salt containing one basic and one inorganic acid radical

Detection of common impurities in chemicals, such as chlorine in hydrochloric acid, oxides of nitrogen in nitric acid; lead in sulphuric acid, arsenic in medicinal salt, iodine in potassium iodide, mercuric chloride in mercurous chloride, etc

Alkalimetry and acidimetry (standardised solutions will be provided)

Candidates must produce note books of their laboratory work, which must be duly certified by the Professor, and shall be taken into account in estimating their qualifications

PHYSICS

Theoretical

States of matter

General properties of solids, liquids and gases

Units of measurement and definition of mass, force, motion

Velocity, acceleration, composition of velocities

Laws of motion

Measurement of force Parallelogram of forces, composition and resolution of uniplanar forces acting at a point

Moment of a force, Levers and simple pulleys

Centrifugal and Centripetal forces

Gravitation, weight, centre of gravity

Laws of falling bodies

The Pendulum

Work and Energy, Conservation of Energy

Elementary ideas of wave motion

Laws of pressure of liquids and gases

Measurement of pressure

Principle of Archimedes, equilibrium of floating bodies

Specific gravity and its determination, hydrometer, urinometer, lactometer

Physical properties of gases—Relation of volume to temperature and pressure—Dalton's or Charles' Law—Boyle's Law, Calculations of volumes from weights, Reduction to normal temperature and pressure (N T P)

Gay Lussac's law

Diffusion, liquefaction and solidification of gases

Atmospheric pressure—Barometers, air pump, syphons

Sound

The production and propagation of sound, velocity of sound in air

Reflection and refraction of sound

Relation between frequency and pitch

Vibration of strings, sonometer

Vibration of the air column, organpipes

Human voice, the ear

The stethoscope, the air trumpet

Heat

Laws of expansions of solids, liquids and gases

Temperature

Measurement of temperatures thermometers, the clinical thermometer, the maximum and minimum thermometers

Radiation, conduction and convection

Reflection and absorption

Vapour pressure, boiling point, dew point, hygrometers, formation of clouds, rain, fog, dew, etc

Changes of state, specific heat and latent heat, calorimetry, sources of heat

Light

Sources of light

Propagation of light

Shadows, photometer

Reflection and refraction of light

Mirrors, prisms, lenses, chromatic dispersion

Spectrum, spectroscopic colours

Optical instruments, the microscope, the telescope, the photographic camera, the eye, mechanism of vision, short and long sight

Magnetism and Electricity

Properties of magnets, magnetic induction

Methods of magnetisation

Magnetic field

The earth as a magnet, mariner's compass

Electricity by friction

Positive and negative electricity

Laws of electrical attraction and repulsion

Conductors and non conductors, insulation, electrical induction, electroscopes

Electrostatic machines, electrophorus.

Potential, capacity, quantity

Condensers, the Leyden jar

Effects of electricity

Atmospheric electricity, lightning conductors

Voltaic cell, electric current

Batteries

Effects of dynamical electricity, galvanometers

Electromotive force, potential, resistance

Ohm's law, volt, ohm, ampere

Electro magnets

Induced currents, Ruhmkorff's coil

Mutual forces between currents and magnets and between currents and currents

Röntgen Rays

Medical batteries

Practical Course

Length measurements, use of vernier

Determination of the specific gravity of solids and liquids including the use of the hydrostatic balance, hydrometers and specific gravity bottles

Determination of the focal length of a convex lens

Construction of a common battery

Use of the following apparatus

Syphon, thermometers, Dry and wet bulb thermometer,

Daniel's hygrometer, barometers, microscope, simple mirrors and lenses, spectroscope, gold leaf electroscope, electrophorus, simple induction coil, magnet, magneto electric machine

Candidates must produce note-books of their Laboratory work which must be duly certified by the Professor, and shall be taken into account in estimating their qualifications

The whole subject will be treated in an elementary manner

BOTANY

Theoretical

The elementary differences and resemblances between plants and animals—Life histories of selected types of unicellular and multi-cellular plants—Yeast—Chroococcus—Cosmarium—Mucor—Spirogyra—Ulothrix—Vaucheria—Peronospora—Moss—Fern—Selaginella—Gymnosperm—Angiosperm

General morphology of flowering plants—The root—Characters—Forms—Consistence—Branch roots—Adventitious roots—Metamorphosis of roots—Roots of epiphytes—Parasites—Saprophytes—Mycorrhiza—Uses of roots to man

The stem—Characters—Forms—Duration—Buds—Modes of Branching—Regions of stem—Microscopic structure in mosses, ferns, monocotyledons, conifers, dicotyledons—Metamorphosis of stems—Uses of stems to man

The leaf—Characters—Phyllotaxis—Pretoliation—Leaf-sheath—Leaf stalk—Leaf blade—Compound leaves—Heterophylly—Modifications of leaves—Uses of Leaves to man—Stipules and their modifications—Hairs and their modifications—Prickles—Stings

The flower—Essential and accessory organs—Bracts and their special forms—Inflorescence Indefinite definite, mixed—The typical flower—Modes of deviation from the perfect type

The perianth—Number of part—Prefloration—Calyx—Corolla and modifications—Andræcium—Gynæcium—Nectaries—Pollination and fertilisation of ovules

The fruit—Its morphology—Classification of fruits Seed its morphology and modes of distribution

Classification of flowering plants—General printing principles of classification—Species—Hybrids—Genera—Orders—Classes—Nomenclature—Modes of describing plants—Eight natural orders (to be notified by the Syndicate from time to time)

Microscopic anatomy of flowering plants The cell—Protoplasm—Test for protoplasm—Nucleus—Cell wall—Cell contents—Plasts—Reserve Proteids—Starch—Mineral deposits—Substances in cell sap—Fats, oils, etc—Nutrition of cell—Formation of new cells—Modification of cells—Tissues—Origin of tissues—Laticiferous vessels—Glands—Resin passages—Air passages—Tissues in Thallogens, Vascular Cryptogams and Phanerogams—Development of embryo of vascular plants and of its tissue systems

The root—Development and microstructure from tip backwards—Development of lateral roots—Secondary changes in roots—Fleshy roots—Uses of each of the tissues of roots to plants—Process of movement of roots

The stem—Development and microstructure—Primary structures of stems—Secondary structures of stems—Modification in subterranean and in metamorphosed stems—Microscopic peculiarities of stems of Conifers, Ferns, Lycopoda, and Selaginella—Mechanical uses of tissues

The leaf—Origin—Structure of leaf blade, leaf sheath, and leaf stalk—the pulvinus, its structure and function—Phyllode—Structure of anomalous and metamorphosed leaves—

Fall of leaf—Glands and nectaries on leaves—Bud scales and stipules

Reproductive organs of Phanerogams—Microstructure and development of members of flower bud—Perianth—Stamens—Carpels—Ovules—Fruits—Seeds

Nutrition and growth in ordinary green plants and their peculiarities in other plants—Chemical elements in plants—How to ascertain the composition of plants—Physiological classification of tissues, protective, nutritive, reproductive—Food of green land plants—Ascent and movements of sap—Elaboration of the sap—Assimilation and Metastasis—Phenomena of growth—Temperature and light in relation to plant life—Movements in plants

Reproduction—Asexual or vegetative—Sexual—Alteration of generations—Deviations from the normal cycle of reproduction

Elementary facts of Plant-Geography

Practical

Candidates must be prepared to examine microscopically, to dissect and to describe specimens or parts of the selected types of plants in the foregoing syllabus

Candidates must produce note books of their Laboratory work, which must be duly certified by the Professor, and shall be taken into account in estimating their qualifications

The whole subject will be treated in an elementary manner

ZOOLOGY

Theoretical

The bearing of Zoology on Human Anatomy, Physiology and Pathology, and on certain aspects of sanitation

The nature of living matter The contrast between the Animal and the plant.

The history of the cell theory The architecture of the cell and of the resting nucleus The phenomena and meaning of Karyokinesis The "reducing division" of the nucleus and its meaning in heredity

The morphology and life history of *Amoeba*, *Euglena*, *Paramoecium*, and *Monocystis* Conjugation and its meaning Sexual reproduction in Protozoa

Sporozoon parasites their life cycle and their pathological importance

General consideration of the Metazoa the germ plasm and the Soma The origin, development, and structure of ovum and sperm cell Amphimixis and its meaning Segmentation of the ovum The germinal layers and their derivatives Embryological and physiological classification of the tissues

The parazoa or sponges their structure, mode of life, and bionomic importance

Structure and development of *Hydra*, the Ectoderm and Endoderm Non sexual reproduction hydraform corals or colonies. "Physiological Division of Labour", differentiation Medusa and metagenesis

Structure of the Anthozoa (e.g., *Sphenopus*) The stomach and its potentialities Importance of the Cœlenterates as builders of the earth's crust

The Cœlomata in general Origin and function of the cœlom Orientation of the body

Structure and mode of life of *Bipalium* Structure and life history of the common liver fluke and tapeworm The Platyhelminths in their pathological and insanitary aspects

Structure and mode of life of the common intestinal roundworm The Nematelminths in their pathological and insanitary aspects

Structure of a Sea worm (e.g., *Eunice*) The trochophore larva Structure of the Earthworm Worms as soil makers Peculiarities of structure of the Leech

General characters of the Molluscan phylum as exhibited in a land snail or pond snail, and in a pond bivalve The Veliger larva and its meaning

Structure and mode of life of a starfish Modifications of the water vascular system in the Echinoderm phylum The *Pluteus* larva

Structure of either the marine prawn *Peneus*, or the fresh water prawn *Palæmon* Post-embryonic metamorphoses of *Crustacea* Examination of the external characters of Scorpion, Spider, Centipede and Locust. Details of structure of Cockroach Post-embryonic metamorphoses of Insects Parthenogenesis and its meaning Instincts of Insects Social Insects Protective devices of Insects Insects as fertilizers of flowers and as carriers of infection Insects of therapeutic importance Arthropods as Scavengers

Characters of the *Chordata* Origin, relations and history of the notochord Primitive Chordates and the Ancestry of the phylum Comparison of *Ascidia* and *Amphioxus*

General consideration of the vertebrate skeleton Structure and composition of the vertebrate skull followed in Shark, Sea perch (or other convenient Teleostean) Frog, Crocodile, Python, Bird and Tiger

General consideration of the integument, brain and sense organs, organs of nutrition, circulation excretion and reproduction in the vertebrata, followed in the Sea perch (or

other convenient Teleostean), Frog, Lizard, Fowl and Mammal

General consideration of the orders of Fishes, with special reference to the modifications exhibited in the skeleton, intestine, breathing organs, heart, genital ducts, and methods of reproduction

Study of the Tadpole and Frog with special reference to the post-embryonic changes in the breathing-organs and blood-vascular System Comparison of Frog with certain types of Fishes

General consideration of the orders of Reptiles, with special regard to the integument, skeleton, dentition, heart and great blood vessels Peculiarities of structure of the snake (*Tröpidonotus*) The poison apparatus of the Cobra and Viper their mechanism and homologues. Nature and mode of action of snake venom chemical antidotes to snake venom theory of antivenines

General consideration of the skeleton, special muscular mechanisms, integument, digestive system, tracheal and pneumatic system, heart and great blood vessels of the bird Secondary sexual characters in birds Structure of the birds' egg Incubation and parental instincts Development of chick the amnion and allantois Comparison of bird and reptile some extinct birds and reptiles.

Evolution and descent of Mammalia Peculiar characters of Monotremes and Marsupials as exhibited in the skeleton and reproductive organs

Dentition of *Eutheria* Homologies of epidermal derivatives of Mammals Structure of the placenta and modes of placentation peculiarities of the embryonic circulation

The orders of Mammalia, considered with regard to external and internal adaptations to environment and modifications of the appendicular skeleton

The genera of *Primates* and their geographical distribution Fossil and subfossil remains of Man

The genus *Homo* and its place in Nature The Races of Man

Station and Habitat of animals Geographical Distribution of animals and its meaning The Geological succession of animals

Rate of increase of animals Natural checks and limitations, and the struggle for existence Variation of individuals The theory of Evolution

Practical Course

Each candidate must be prepared to examine microscopically, to dissect and to describe specimens or parts of the selected types of animals in the foregoing syllabus

Candidates must produce note books of their Laboratory work, which must be duly certified by the Professor, and shall be taken into account in estimating their qualifications

The whole subject will be treated in an elementary manner

6 Exemptions may be granted in respect of the Preliminary Scientific M B Examination, as follows

(i) Any candidate who, in the Intermediate Examination in Arts or Science, has passed in one or more of the following subjects, namely, Chemistry, Physics, Botany, Zoology, shall be excused attendance at lectures and the practical work, and also the theoretical portion of the examination in the corresponding subject. No such candidate shall, however, be excused the oral and practical portion of the examination in any subject.

(ii) Bachelors of Science who have passed in Physics, Chemistry Botany or Zoology at the B Sc Examination shall be excused attendance at lectures and the practical work, and also the theoretical, oral and practical examination in the subject in which they have already passed

7 The full marks for each subject and the minimum marks required for passing shall be as follows

	Written	Oral	Practical	Total marks	Passing marks	Passing marks in Practical
Chemistry	400	50	150	600	200	50
Physics	200	50	50	300	100	17
Botany	200	100	100	400	134	34
Zoology	200	100	100	400	134	34

FIRST M B EXAMINATION

1 Any undergraduate of the University who has fulfilled the following conditions may be admitted to the examination

(a) that he has passed the Preliminary Scientific Examination at least two years previously,

(b) that he has attended a regular course of study theoretical and practical in the subjects of the Examination for not less than two years at a College of Medicine affiliated to the University up to the standard of the First M B Examination

Any candidate who has passed the Intermediate Examination in Science shall be permitted to present himself at the Preliminary Scientific M B Examination at the same time as he presents himself at the First M B Examination, or at any previous examination for the Preliminary Scientific M B. The provisions of Regulation 6 of Chapter XLIV shall apply to such candidates.

2 The First M B Examination shall be held once in each year and shall commence at such time as the Syndicate shall determine. Every candidate for admission to the Examination shall send to the Registrar his application, with a certificate in the form prescribed by the Syndicate and a fee of Rs 15, at least fourteen days before the date fixed for the commencement of the examination, mentioning at the same time the subject or subjects, if any, in which he desires to take up Honours. If a candidate takes up Honours he shall pay an additional fee of Rs 30. A candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee, but may be admitted to one or more subsequent examinations on payment of the prescribed fee on each occasion, on producing a certificate that he has, since the date of the last examination attended a regular course of study in the subject or subjects in which he last failed at that examination, provided that after three failures he shall not be admitted to the examination except on the special recommendation of the Principal.

3 Every candidate shall be examined in the following subjects—Anatomy, Physiology, Pharmacology including Pharmacy, Materia Medica and Therapeutics and Organic Chemistry (with special reference to organic compounds in the British Pharmacopœia).

The examination shall be written, oral and practical. Three hours shall be allowed for each paper in each subject.

The examination in Anatomy shall consist of

- (a) One theoretical paper
- (b) Dissection
- (c) An oral examination

The examination in Physiology shall consist of

- (a) One theoretical paper
- (b) A practical examination
- (c) An oral examination

The examination in Pharmacology, including Pharmacy and Materia Medica, shall consist of

- (a) One theoretical paper
- (b) An examination in Practical Pharmacy
- (c) An oral examination, which may include the recognition of the more important substances in the British Pharmacopœia.

The examination in Organic Chemistry shall consist of

- (a) One theoretical paper
- (b) A practical examination within the scope of the Syllabus
- (c) An oral examination

4 In all subjects other than Organic Chemistry the candidate may be examined for Honours as well as Pass.

5 The scope of the examination for Honours in each subject shall be wider than that required for the Pass Examination, an extra paper being given for each subject and the candidate shall have to undergo a further and more searching oral and practical examination. The examination will not necessarily be confined to the Syllabus, if any, prescribed in that subject.

No student shall be considered eligible for Honours who has not acquitted himself satisfactorily in the Pass Examination.

6 As soon as possible after the Examination, the Syndicate shall publish a list of candidates who have passed together with a list of those who have obtained Honours in any subject arranged in order of merit.

On the recommendation of the Examiners a Gold Medal may be awarded to the candidate who has most distinguished himself in Honours in any branch of the Examination.

7 The Course of study for the First M B Examination shall be as follows

ANATOMY

The curriculum in Anatomy shall consist of (1) a complete course on Human Anatomy, (2) a course of dissections extending over two winter sessions.

PHYSIOLOGY

The curriculum in Physiology shall consist of (1) a theoretical course of lectures on Physiology, (2) a practical course of experimental Physiology extending over not less than three months, (3) a practical course of normal Histology extending over not less than three months, (4) a course of elementary Physiological Chemistry (including practical exercises) extending over not less than three months.

The General Histology of the animal Cell, Epithelia and connective Tissues, Histology and Physiology of the contractile Tissues, Blood and Lymph the circulation of the Blood

and Lymph embracing the mechanism of the circulation of the blood and of the movements of the Lymph.

The Innervation and Nutrition of the Heart and the Innervation of the Blood vessels.

The Histology of the organs of Respiration and the Physiology of Respiration including the Chemistry thereof.

The general chemical composition of the Body, the Chemistry of Digestion and Nutrition, the Physiology of Absorption, Excretion and Metabolism, Animal Heat, Ductless Glands, Internal Secretion, The Structure, Development and Functions of the central Nervous System and Organs of the special Senses, Reproduction and Development.

Experimental Physiology—A practical knowledge of the working of the more important physiological instruments including a knowledge of the chief experiments illustrating the functions of the organs and tissues of the body and the methods made use of in recording the results obtained in a graphic manner.

The course shall include—

i Muscle nerve preparation—results of stimulation by different forms of stimuli—action of interrupted and constant current—Tetanus—muscle sound—Fatigue—work done—Influence of Temperature, Load, Drugs, Elasticity and extensibility of muscle—Electrotonus—Reaction of Degeneration, etc.

ii Frog's Heart—

Graphic record of heart—Stannius' experiment—Gaskell's clamp—Latent Period of Heart—Action of heat, cold and constant current—Innervation Endocardial Pressure—Action of Drugs on Frog's Heart.

iii Mammalian Heart

Its Nutrition, Perfusion experiments, Cardiac Impulse—Sounds—Cardiograph—Action of Drugs, etc.

iv Blood Vessels

Pulse—Sphygmographic tracings Sphygmoscope Blood Pressure and methods of measuring it.

Stromuhr—Kymograph—Manometers, etc., clinical method as by Hill's sphygmometer Plethysmographs, etc.

v Lungs—Vital capacity—Elasticity of Lungs, Pneumograph Laryngoscope, etc.

vi Reflex action—knee jerk, action of Poisons on nervous system.

vii Eye—Accommodation—Phakoscope—Astigmatism and Defects Phosphenes, Retinal shadows—Perimetry Colour vision—Colour Blindness—Contrast Stereoscope, Ophthalmoscope, etc.

viii Cutaneous Sensations—Cold, Hot, Pressure and Pain Spot—Muscular Sense—Resistance, etc.

ix Taste, Smell, Hearing—Stereognostic Sense, etc.

Normal Histology

Methods of preparation of the different tissues of the Body for Histological purposes.

(1) Hardening, Embedding, Section cutting, Staining and Mounting.

(2) Histology of the Blood.

Enumeration of red and white blood corpuscles Differential Count of the white blood corpuscles, crystals of Haemoglobin.

(3) Recognition of sections of the different tissues of the Body. Chemical Physiology.

(1) General chemical Reactions and composition of Carbohydrates, Fats, Proteids and allied substances.

(2) Chemical Composition of Animal and Vegetable Food stuffs.

(3) Chemistry of Digestion.

Action of Saliva, Gastric juice, Succus Entericus and Bacterial Digestion.

(4) The Liver and Products of its activity.

(5) The blood.

Estimation of alkalinity and gases of blood Coagulation time Estimation of Haemoglobin Spectroscopic Examination of blood pigments Detection of blood stains.

(6) Chemistry of Urine.

Normal and Pathological Urine Testing and Sediments Estimation of quantity of Blood, Uric acid, Urea, Sugar, Chlorids, Phosphates, Total Nitrogen Pigments of Urine—Polarimeter—Amount of Albumen, Albumoses, etc.

(7) Chemistry of Gastric Juice Estimation of acidity Tests for Hydrochloric acid, Lactic acid, Butyric acid.

(8) Cryoscopy, Osmosis and Osmotic Pressure Analysis of gases of expired air.

At the Practical Examination, students will be expected to show knowledge of the following Subjects.

(i) In normal Histology, including a knowledge of preparation of tissues for microscopic examination Fixing hardening, embedding, section cutting, staining, clearing, mounting and recognition of specimens.

Enumeration of red and white blood corpuscles Differential enumeration of white blood corpuscles.

(ii) In Physiological Chemistry, including practical knowledge of the Coagulation and alkalinity of the blood Estimation of Haemoglobin of the blood.

Chemical composition and tests for—Carbohydrates and fats.

Proteids
Principal food stuffs
Saliva
Peptic and pancreatic digestion, and analysis of digestive juices HCl, inferior, viz, lactic acid, etc
Bile, blood, milk, urine Quantitative examination of albumen, sugar, urea and chlorides in urine
Pigments
The use of simple spectroscope and saccharimeter
(iii) In experimental Physiology including a knowledge of and the uses of the more important physiological apparatus
Physiological experiments illustrating the function of—
(1) Nerve and muscle
Single contraction, Tetanus, Excitability, Fatigue, etc
Modifications of contractions under different conditions The graphic method to be made use of
(2) Experiments on frog's heart
Stannius' experiment, action of heat and cold
Cardiograph, action of drugs on heart's beat
(3) Method of using the different form of Sphygmographs
Marey's Dudgeon Jacquet
Tracings to be made
(4) Estimation of the blood pressure in different parts of body
Use of Hill and Barnard Sphygmometers and Oliver's Hemo Dynamometer
(5) The nervous regulation of Respiration
The Stethometer and Pneumograph
(6) Reflex action
(7) Experimental Physiology of Eye, Accommodation, Colour Sense, Perimetry
Candidates must produce note books of their Laboratory work which must be duly certified by the Professor and shall be taken into account in estimating their qualification

PHARMACOLOGY INCLUDING PHARMACY AND MATERIA MEDICA

The curriculum shall consist of a theoretical course of lectures and a course of instruction in practical pharmacy extending over not less than two months, including practical knowledge of the preparation of medicines and of the constituents of the more important compounds of the British Pharmacopœia as also prescription writing

The systematic course of lectures will deal briefly with the natural history, and the sensible and chemical properties of all drugs and medicinal agents mentioned in the British Pharmacopœia, and will also include full account of their pharmacological action upon the chief functions of the body, viz, Circulation, Respiration, Digestion, Absorption, Secretion, and Excretion, Metabolism, Heat regulation, Motor, Sensory and Reflex Mechanism, and the chemical transformations undergone in the body by the principal medicinal substances. The Therapeutic uses and modes of administration of the official drugs and medicinal agents will be also included in the lectures, and as far as time and opportunity allow, reference will also be made to the most important of the more recently introduced drugs and their probable mode of action explained as far as is known

ORGANIC CHEMISTRY

Theoretical

Analysis of organic compounds, Estimation of C, H, N, S, P and the halogens

Empirical and molecular formulae

Determination of molecular weights

Determination of melting and boiling points

Fractional distillation

Students will be expected to know the general properties of the following groups of compounds, illustrated in each case by reference to a few of their more important members

Aliphatic series —

Paraffins (methane and ethane),

Unsaturated hydrocarbons (ethylene and acetylene)

Alcohols and their derivatives (methyl, alcohol, ethyl, alcohol and glycerol)

Aldehydes (for maldehyde and chloral hydrate)

Ketones (acetone)

Acids (formic, acetic, lactic, oxalic, tartaric and citric)

Ethyl Ether

Esters (saponification)

Carbohydrates, Sugars (glucose, lactose, maltose, and cane sugar), starches, glucosides.

Cyanides, urea, uric acid

Aromatic Series —

Benzene and its simple derivatives

Phenols (Phenol and resorcinol)

Acids, Benzoic and Salicylic

Vegetable alkaloids

Practical

Test for the following elements in organic compounds —
Carbon, hydrogen, nitrogen, sulphur, phosphorus and chlorine

Tests for and reactions of ethyl alcohol Preparation of chloroform and iodoform ethyl alcohol
Preparation of fatty acids from a fat
Preparation of a salt from an organic base or of a base from one of its salts, e.g., quinine sulphate and *vice versa*)
Recognition of important alkaloids by ordinary tests
Test for urea Test for glucose and cane sugar
Test for phenol and salicylic acid
The more important tests for acetic, oxalic, tartaric and citric acids

Analysis of urine and urinary calculi

Candidates must produce note books of their Laboratory work, which must be only certified by the Professor, and shall be taken into account in estimating their qualification.

The whole subject will be treated in an elementary manner
8 The full marks for each subject and the minimum marks required for passing shall be as follows —

	Written	Oral	Practical	Total marks	Passing marks	Passing marks in Practical
Anatomy	600	200	200	1,000	500	100
Physiology	600	200	200	1,000	500	100
Pharmacology, etc.	600	200	200	1,000	500	100
Organic Chemistry	200	50	50	300	100	17

In order to obtain Honours in any branch candidates must obtain one half of the marks allotted to each portion of the examination, written, oral and practical, and two-thirds in the aggregate

FINAL M B EXAMINATION

1 Any candidate who fulfils the following conditions may be admitted to this examination —

(a) That he has passed the First M B Examination at least three academic years previously

(b) That he has subsequently to passing the First M B Examination, completed a regular course of study theoretical and practical, in the subjects of the examination in a College of Medicine affiliated to the University, up to the standard of the Final M B Examination

2 The Final M B Examination shall be divided into two parts — Part I, and Part II embracing the Major and Minor subjects, respectively, as defined below. The examination in the Major subjects, that is Part I shall take place once a year while that in the Minor subjects, that is Part II, shall take place twice each year. A candidate may either take up both parts together, or one part only, either Part I or Part II at that time, leaving the other for a subsequent examination

3 Every candidate for admission to the examination shall send to the Registrar his application, with a certificate in the form prescribed by the syndicate at least fourteen days before the date fixed for the commencement of the examination mentioning at the same time the subject or subjects (if any), in which he desires to take up Honours.

4 A fee of thirty rupees shall be payable by each candidate taking up the two parts of the examination together, but if Part I and Part II be taken separately, the fee for each Part shall be Rs 20. A candidate who takes up Honours in any subject shall pay an additional fee of Rs 30. A candidate who fails to pass or present himself for examination, shall not be entitled to claim a refund of the fee. A candidate may be admitted to one or more subsequent examinations on payment of the prescribed fee on each occasion provided he produces a certificate of regular study in the subject or subjects in which he is to be re-examined and this study must have been pursued not only since the date of his failure, but within the twelve months preceeding his re-examination

5 A candidate, who fails in not more than two subjects of Part II of the Final M B Examination, may be re-examined in the subject or subjects in which he failed within six months from the date of failure

6 Part I of the Final M B Examination must be passed as a whole

7 Every candidate shall be examined in the following subjects

Major Subjects, Part I	1 Medicine (including Therapeutics, special Pathology and Mental Diseases)
	2 Surgery including Ophthalmology
	3 Midwifery and Gynaecology
Minor Subjects, Part II	4 General Pathology (including Bacteriology and Parasitology)
	5 Medical Jurisprudence
	6 Hygiene

The examination in medicine shall consist of—

(a) Two theoretical papers

(b) A clinical examination of a patient and written report thereon

(c) An oral examination
The examination in Surgery shall consist of—

- (a) Two theoretical papers
- (b) A clinical examination on cases
- (c) An oral examination in which questions on the use of surgical instruments and appliances, on the application of splints and bandages and on museum specimens illustrating Surgical Pathology shall form a special part
- (d) Operations on the dead body

The examination in Midwifery and Gynaecology shall consist of—

- (a) One theoretical paper
- (b) An oral examination including questions on specimens, instruments and appliances
- (c) Obstetric operations on the manikin

The examination in General Pathology shall consist of—

- (a) One theoretical paper
- (b) A practical examination within the scope of the Syllabus
- (c) An oral examination including questions on museum specimens

The examination in Medical Jurisprudence shall consist of—

- (a) One theoretical paper
- (b) An oral examination
- (c) A practical examination to include examination on the dead body on points of medico legal importance as arising out of, or as illustrated by, the conditions observable on the dead body, the actual methods of *post mortem* examination for medico legal purposes, the putting up of materials for medico legal chemical analysis and the writing of medico legal *post mortem* reports

The examination in Hygiene shall consist of—

- (a) One theoretical paper
- (b) An oral examination

8 In every subject other than Hygiene a candidate may be examined for Honours as well as for Pass

The scope of the examination for Honours in each subject shall be wider than that required for the Pass Examination, an extra paper being given in each subject and the candidate shall have to undergo a further and more searching moral and practical examination. The examination will not necessarily be confined to the Syllabus, if any, prescribed in that subject.

No student shall be considered eligible for Honours who has not acquitted himself satisfactorily in the Pass Examination.

9 As soon as possible after the examination, the Syndicate shall publish a list of the candidates who have passed, arranged in alphabetical order, and of those who have taken Honours in any branch, arranged in order of Merit.

Every candidate on passing shall receive a diploma in the form given in Appendix A. On the recommendation of the examiners a Gold Medal may be awarded to the candidate who has most distinguished himself in Honours in any branch of the examination.

10 The course of study shall be as follows —

MEDICINE

(1) A course of lectures on the principles and practice of Medicine

(2) A course of not less than twenty demonstrations on Clinical methods, Physical Diagnosis and the use of instruments of observation used in Medicine

(3) Attendance upon the medical practice of a recognised hospital for three years, with clinical instruction and lectures in clinical medicine and experience as clinical clerk for twelve months during this period (with a careful record of at least six medical cases which the candidate may be required to produce before the examiners)

(4) A course of lectures on Mental Diseases with clinical demonstrations at a recognised Asylum for a period of one month

Mental constitution. Mental character, Mental health
Sleep—Insomnia and its treatment
The examination of Mental cases
Diagnostic characters of insanity
Causation—Prognosis—General Principles of treatment
Melancholia, Katatonia, Catalepsy, Partial Insanity, Chronic
Progressive delusional Insanity, Mania
Dementia, Moral Insanity, General Paralysis of the Insane
Epileptic Insanity, Inebriety, Concomitant Insanities,
Alcoholic Insanity, Puerperal and allied insanities
Idiocy and imbecility. The backward and feeble minded
The legal and civil aspects of Mental Disease.
(5) Three months of attendance at the Medical Out door Dispensary of a recognised hospital

SURGERY

(1) A course of lectures on the principles and practice of Surgery

(2) Courses of instruction in—

- (a) Operative Surgery, and Surgical Anatomy of not less than 30 demonstrations
- (b) Surgical case taking and Practical Surgery (including minor Surgery and bandaging) of not less than 30 demonstrations, and
- (c) The administration of Anæsthetics

(3) Attendance upon the Surgical practice of a recognised Hospital during three years with clinical instruction and lectures on clinical Surgery and twelve months' practice as dresser during that period with a careful record of at least six surgical cases which the candidate may be required to produce before the examiners

(4) A course of lectures in Ophthalmology
Examination of the Eye (a) objective, (b) functional
Diseases of the Conjunctiva, Cornea, Sclerotic, Iris, Ciliary body, Choroid Lens, Vitreous, Retina, Optic nerve, Lids, Lacrymal organs and Orbit. Congenital Defects. Amblyopia and functional disorders of Sight, Glaucoma.
Disturbances of mobility of the Eye

Optical properties of the normal eye, and the theory of spectacles

Anomalies of Refraction and Accommodation

Operations and their technique

Practical instruction in Ophthalmoscopy and Refraction

(5) Three months of attendance at a recognised hospital for diseases of the Eye

(6) Three months of attendance at the Surgical Out-door Dispensary of a recognised hospital

MIDWIFERY AND GYNÆCOLOGY

(1) A course of lectures on Midwifery and Gynaecology

(2) A course of not less than 20 demonstrations on Practical Midwifery and Gynaecological instruments and appliances

(3) The conduct of at least six labours, three of which must be in the presence of one of the obstetric assistants or any legally qualified practitioner in Medicine (certificate from whom in this subject will be accepted). Candidates must draw up an accurate record of the labour cases attended by them. They may be required to produce their case books before the examiners in evidence of diligent work.

(4) Attendance for not less than two months as a clinical clerk in a Gynaecological ward or out patient room

PATHOLOGY

(1) A course of lectures on General Pathology, including Bacteriology and Parasitology treated in an elementary manner

(2) A course of practical instructions and demonstrations extending over not less than four months

(3) Attendance in the *post mortem* room for not less than three months and the careful performance of six *post-mortem* in the presence of the Teacher or his Assistant

General Pathology—Definition. Health and disease
Ætiology. Heredity and environments. Defects of development. Processes of Infection and Immunity. Disorders of Nutrition and Auto intoxication. Dropsy. Disorders of the blood and circulation. Degenerations and retrogressive changes. Processes of inflammation and repair. The process of fever. The more important structural changes produced in the organs and tissues by disease as recognized by the naked eye and microscopical investigations. Tumours and specific granulomata.

Bacteriology—The Morphology and Biology of the following micro-organisms—Pyogenic Cocci, Pneumococcus and Gonococcus, B. Coli Communis, B. Anthracis, B. Diphtheriae, B. Lepre, B. Tetani, B. Tuberculosis, B. Typhosus, Vibrio Cholerae Asiaticus, B. Pestis, Streptothrix Actinomycosis group, B. Dysentericus, M. Maltensis, Diplococcus Intercellularis, Meningitidis, B. Influenzae, Spirillum Obermeieri, Spirochaete of Syphilis, Pathogenic moulds.

Parasitology—The Morphology and Biology of the following—Hæmatozoon Malariae, Piroplasma, Amœba coli, Amœba dysenterica, Trypanosomes, Distomum Hepaticum, Distomum crassum, Ascaris Lumbricoides, Oxyurias Vermicularis, Trichina Spiralis, Anchylostomum duodenale, Filaria Sanguinis Hominis, Dracunculus Medicinalis, Tricocephalus Dispar, Taenia Solium, Taenia Mediocanellata, Tenia Echinococcus, Bothriocephalus latus, Bilharzia hematobia, Parasite of Kala-azar, Amphistomum Hominis, Acarus Scabiei, pediculi

Practical

Technique of collection and pathological examination of morbid materials such as Blood, Gastric and Intestinal contents, Urine, Pus, Sputum and Exudates

A practical knowledge of the apparatus used for bacteriological work, viz.,—Hot air Steriliser, Steam Steriliser, and

Incubator Preparation of culture media Culture and inoculation methods

Preparation, section cutting, staining and mounting of pathological tissues and their microscopical examination with a view to their recognition

MEDICAL JURISPRUDENCE

- (1) A course of lectures on Medical Jurisprudence
- (2) Attendance at not less than twelve medico legal *post mortem* examinations

Medical evidence, with special reference to Indian Evidence Act Medico legal Reports, Dying Declarations

Signs of Death *Post mortem* stains Rigor Mortis Cadaveric Spasm Putrefaction in Air and Water Mummification Adipocere Examination of the dead body *Post mortem* Examination in medico legal cases Age in its medico legal relations. Development of the fetus Changes after birth The teeth Ossification and Union of Epiphyses

Identity of the living Identity of the dead Sexual characteristics of the skeleton

Modes of dying Causes of Sudden death Death from asphyxia Hanging Strangulation Suffocation Throttling Drowning Resuscitation from Drowning

Mechanical injuries and wounds Chemical, microscopical and spectroscopical examination of Blood stains and other stains

Death by burns and scalds Death from lightning, electric current, heatstroke and cold Starvation—its causation, symptoms and *post mortem* appearances Medico legal questions relating to pregnancy, delivery and abortion, infanticide, criminal offences, legitimacy

Medico legal aspects of insanity Forms of insanity Delusions, Illusions, Hallucinations Criminal responsibility Modes of placing lunatics under restraint. Medical certificates Lunacy certificates. Examination of lunatics Testamentary capacity Feigned insanity Placing habitual drunkards under restraint

Toxicology Diagnosis and general treatment of poisoning Evidence of poisoning in the dead Local effects produced by poisons, disease, and *post mortem* changes Preservation of viscera for analysis The detection of poisons, chemical and physiological test

Toxicology of the following poisons Mineral Acids Corrosive alkalies, carbolic acid, corrosive sublimate, oxalic acid Salts of Copper, Lead Antimony Arsenic, Phosphorus Opium, Cyanogen compounds, *alcohol*, Chloroform, Chloral Hydrate Kerosine oil, Carbon Dioxide, Carbon Monoxide, Sulphuretted Hydrogen, Strychnine, Aconite Datura, Belladonna, Cannabis Sativa—Nerium Odorum Cocaine, Calotropis gigantea Plumbago Zeylanica, snake venom Poisonous Animal Food

HYGIENE

- 1 A course of lectures in Hygiene including demonstrations
- 2 Six practical Demonstrations
- 3 Practical instruction in Vaccination by any authorised Vaccinator

Definition General Hygiene Special Hygiene Public Health

Impurities in air Effects of vitiated air generally Ventilation Natural and artificial Cubic space

Impurities in water Their source and effects Diseases caused by impure water Water supply Methods of purification and filtration

Physical examination of waters as regards their potability Food. Functions of the four classes of, elementary principles of dieting Average diets, Dietsaries

Different varieties of food

Meat. Inspection of animals and of meat Effects of unsound meat. Poultry and game Fish Cooking Milk Vegetable Foods Wheat, Flour Bread Barley Oat Maize Rice Millet, &c Leguminosae, &c, (Dal) Roots and Tubers (potatoes, carrot, &c) Herbaceous Vegetable (cabbage, cauliflower, &c.) Fruits Prepared starches Sugars Concentrated foods

Beverages and condiments The Removal and Disposal of Sewage Clothing

The construction of the dwelling house Sanitary inspection of a house

Personal Hygiene in India The causation and prevention of Endemic and Epidemic diseases.

The general principles of disinfection and the methods of carrying them into effect

Disposal of the dead The powers and legal obligation of the medical practitioner under the Municipal Act, the correct registration of the cause of death

11 The full marks for each subject and the minimum marks required for passing shall be as follows

	Written	Oral	Practical	Total marks	Passing marks	Passing marks in Practical
Medicine	600	200	200	1,000	500	66
Surgery	600	200	200	1,000	500	66
Midwifery	500	100	200	800	400	66
Pathology	400	100	100	600	200	34
Medical Jurisprudence	400	100	100	600	200	34
Hygiene	200	100	100	400	200	34

12 In order to obtain Honours in any branch a candidate must obtain half the marks allotted to each portion of the examination, written, oral and practical, and two thirds in the aggregate

DOCTOR OF MEDICINE

1 An examination for the degree of Doctor of Medicine shall be held annually in Calcutta and shall commence at such time as the Syndicate shall determine, the approximate date to be notified in the Calendar

2 Any Bachelor of Medicine may be admitted to this Examination on the production of certificates

Of having subsequently to passing the M B Examination, completed, either, three years' continuous practice of the Medical Profession or, two years of Hospital practice

Each of these periods shall be reduced by one year if the candidate be a Graduate with Honours in Medicine

No application shall however be entertained unless two Members of the Faculty of Medicine or two Doctors of Medicine shall have testified, to the satisfaction of the Syndicate that since graduating as Bachelor of Medicine, the candidate has practised his profession with repute for the period specified, and that in habits and character, he is a fit and proper person for the Degree of Doctor

3 Every candidate for admission to the examination shall send his application to the Registrar, with a certificate in the form prescribed by the Syndicate and a fee of Rs 100, at least two months before the date fixed for the commencement of the examination

4 A candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee A candidate may be admitted to one or more subsequent examinations on payment of a like fee of one hundred rupees on each occasion

5 Every candidate shall be examined in the following subjects

Medicine (Two papers, of which one may be a case for commentary)

Pathology (one paper)

Mental Diseases (one paper)

The examination shall be written, oral and practical, and shall also include a thesis

6 A candidate for the Degree of Doctor of Medicine shall transmit to the Registrar not less than two months before the commencement of the examination, a Thesis or published work embodying the result of independent research and having definite relation to the subjects of Medicine, Pathology or mental Diseases The candidate must indicate in what respects his thesis or Research appears to him to advance Medical knowledge or practice The candidate may also submit any printed contribution or contributions to the advancement of Medical Science published independently or conjointly

If the thesis or published work is approved by the Examiners they will report on the same as "commended" or "highly commended" Unless the thesis is commended, the candidate shall not be admitted to the examination

7 As soon as possible after the examination the Syndicate shall publish a list of successful candidates arranged in alphabetical order with the titles of their theses and the opinions of the examiners thereon placed against the name of each candidate If in the opinion of the examiners sufficient merit be evinced, a University gold medal shall be awarded to the candidate passing with the greatest distinction

8 Any candidate who is not a Bachelor of Medicine may be admitted to the examination for the degree of Doctor of Medicine in accordance with the conditions laid down in Regulations 5 and 6 and on producing certificates

(a) of having passed the Licentiate Examination in Medicine and Surgery of the University,

(b) of having passed the examination in Zoology required for the Preliminary Scientific M B Examination,

(c) of having practised the Medical profession with repute for the period specified,

(d) of being in habits and character a fit and proper person for the Degree of Doctor

MASTER OF SURGERY

1 An Examination for the degree of Master of Surgery shall be held annually in Calcutta and shall commence at such time as the Syndicate shall determine, the approximate date to be notified in the Calendar

2 Any Bachelor of Medicine may be admitted to this Examination on the production of certificates

(a) of having subsequently to passing the M B Examination, completed—

Three years' continuous practice of the Medical profession
Two years of hospital practice

Each of these periods shall be reduced by one year if the candidate be a graduate in Medicine with Honours in Surgery

No application shall however be entertained unless two members of the Faculty of Medicine or two Masters of Surgery shall have testified, to the satisfaction of the Syndicate, that since graduating as Bachelor of Medicine, the candidate has practised his profession with repute for the period specified, and that in habit and character, he is a fit and proper person for the Degree of Master

3 Every candidate for admission to the examination shall send his application to the Registrar with a certificate in the form prescribed by the Syndicate at least two months before the date fixed for the commencement of the examination

4 A candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee. A candidate may be admitted to one or more subsequent examinations on payment of a like fee of one hundred rupees on each occasion

5 Every candidate shall be examined in the following subjects

(1) Surgery [Two papers, one of which may be a case for commentary]

(2) Surgical Pathology and Surgical Anatomy (one paper)

(3) Ophthalmology or any other branch of Special Surgery that may be recognised by the University from time to time (one paper)

(4) Operative Surgery and the use of instruments

The examination shall be written, oral and practical

A candidate for the Degree of Master of Surgery shall transmit to the Registrar not less than two months before the commencement of the examination, a thesis or published work embodying the result of independent research and having definite relation to Surgery. The candidate must indicate in what respects his Thesis or Research appears to him to advance Surgical knowledge or practice. The candidate may also submit any printed contribution or contributions tending to the advancement of Medical Science published independently or conjointly

If the thesis or published work be approved by the examiners, they will report on the same as "commended," or "highly commended." Unless the thesis is commended, the candidate shall not be admitted to the examination

7 As soon as possible after the examination, the Syndicate shall publish a list of successful candidates arranged in alphabetical order, with the titles of their theses and the opinions of the examiners thereon placed against the name of each candidate. If in the opinion of the examiners sufficient merit be evinced, a University gold medal shall be awarded to the candidate passing with the greatest distinction.

8 Any candidate who is not a Bachelor of Medicine may be admitted to the Examination for the degree of Master of Surgery, in accordance with the conditions laid down in Regulations 5 and 6, on producing certificates to the following effect

(a) of having passed the Licentiate Examination in Medicine and Surgery of the University,

(b) of having passed the examination in Zoology required for the Preliminary Scientific M B Examination,

(c) of having practised the Medical profession with repute for the period specified,

(d) of being in habits and character a fit and proper person for the degree of Master of Surgery

MASTER OF OBSTETRICS.

1 An Examination for the Degree of Master of Obstetrics shall be held annually in Calcutta and shall commence at such time as the Syndicate shall determine, the approximate date to be notified in the Calendar

2 Any Bachelor of Medicine may be admitted to this examination provided he shall produce certificates to the following effect

(a) of having, subsequent to passing the M B Examination, attended during a period of six months a course of clinical instruction in a recognised hospital or ward specially devoted to the treatment of Obstetric and Gynecological cases

(b) of having subsequent to passing the M B Examination, had personal charge of at least twenty cases of labour, a record of which must be submitted

(c) of having, subsequently to passing the M B Examination, completed—

Either three years' continuous practice of the Medical profession,

Or two years of hospital practice

If the candidate be a graduate in Medicine with Honours in Midwifery, each of these periods shall be reduced by one year

No application shall however be entertained unless two Members of the Faculty of Medicine or two Masters of Obstetrics shall have testified, to the satisfaction of the Syndicate, that since graduating as Bachelor of Medicine the candidate has practised his profession with repute for the period specified and that in habits and character he is a fit and proper person for the Degree of Master

3 Every candidate for admission to the examination shall send his application to the Registrar with a certificate in the form prescribed by the Syndicate and a fee of Rs 100 at least two months before the date fixed for the commencement of the examination

4 A candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee. A candidate may be admitted to one or more subsequent examinations on payment of a like fee of one hundred rupees on each occasion

5 Every candidate shall be examined in the following subjects

(1) Obstetrics (Two papers, one of which may be a case for commentary)

(2) Anatomy, Physiology, Embryology and Pathology in relation to Obstetrics and Gynecology (one paper)

(3) Gynecology (one paper)

(4) Operative Gynecology and the use of instruments

The examination shall be written, oral and practical

A candidate for the degree of Master of Obstetrics shall transmit to the Registrar, not less than two months before the commencement of the examination, a thesis or published work embodying the result of independent research and having definite relation to Obstetrics or Gynecology. The candidate must indicate in what respects his thesis or research appears to him to advance Obstetric or Gynecological knowledge or practice. The candidate may also submit any printed contribution or contributions tending to the advancement of Medical Science published independently or conjointly

If the thesis or published work be approved by the Examiners, they will report on the same as "commended," or "highly commended"

Unless the thesis is commended, the candidate shall not be admitted to the examination

7 As soon as possible after the examination, the Syndicate shall publish a list of successful candidates arranged in alphabetical order, with the titles of their theses and the opinions of the Examiners thereon placed against the name of each candidate. If in the opinion of the Examiners sufficient merit be evinced, a University gold medal shall be awarded to the candidate who shall have passed with the greatest distinction

8 Any candidate who is not a Bachelor of Medicine may be admitted to the Examination for the Degree of Master of Obstetrics in accordance with the conditions laid down in Regulations 5 and 6, on producing certificates to the following effect

(a) of having passed the Licentiate Examination in Medicine and Surgery of the University,

(b) of having passed the Examination in Zoology required for the Preliminary Scientific M B Examination,

(c) of having practised the Medical profession with repute for the period specified,

(d) of having, subsequent to passing the Licentiate Examination in Medicine and Surgery, attended during a period of six months a course of clinical instruction in a recognised hospital or ward specially devoted to the treatments of Obstetric and Gynecological cases,

(e) of having, subsequent to passing the Licentiate Examination in Medicine and Surgery, had personal charge at least twenty cases of labour, a record of which must be submitted,

(f) of being in habits and character a fit and proper person for the Degree of Master of Obstetrics,

DIPLOMA IN PUBLIC HEALTH

1 An examination for a Diploma in Public Health shall be held annually in Calcutta and shall commence at such time as the Syndicate shall determine, the approximate date to be notified in the Calendar

2 Any Bachelor of Medicine or Licentiate in Medicine and Surgery may be admitted to this examination on the production of certificates

(a) Of having subsequent to passing the M B or L M S examination—

(i) attended during three months the practice of a hospital for infectious diseases or in a special ward in a General Hospital where such cases are treated,

(ii) attended during a period of six months an approved course of Practical Laboratory instruction in Chemistry, Bacteriology and Pathology of those diseases of animals that are transmitted to man,

(iii) been diligently engaged for at least six months in acquiring a practical knowledge of the duties, routine and special, of Public Health administration, either independently

as a Sanitary Officer of a town or a district, or under the supervision of a recognised Medical Officer of Health, or a Teacher in the Department of Public Health of a recognised Medical College

No application shall however be entertained unless two Members of the Faculty of Medicine or two Doctors of Medicine shall have testified to the satisfaction of the Syndicate that since passing the M B or L M S examination the candidate has practised his profession with repute for the period specified, and that in habits and character, he is a fit and proper person to receive the Diploma in Public Health

3 Every candidate for admission to the Examination shall send his application to the Registrar with a certificate in the form prescribed by the Syndicate, and a fee of Rs 100 at least two months before the date fixed for the commencement of the examination

4 A candidate who fails to pass or present himself for examination shall not be entitled to claim a refund of the fee. A candidate may be admitted to one or more subsequent examinations on payment of a like fee of fifty rupees on each occasion

5 Every candidate shall be examined in the following subjects

- (a) Chemistry and Physics (as applied to Public Health)—one paper and a practical examination
- (b) Etiology of Disease (including Pathology, Bacteriology and Parasitology)—one paper and a practical examination
- (c) Hygiene—one paper
- (d) Sanitation, Sanitary Engineering, Sanitary Law and Vital Statistics—one paper
- (e) Sanitary reporting

The examination shall be written, oral and practical

6 The limits of the subjects referred to in paragraph 5 shall be as follows

(a) *Chemistry*—Constitution of the atmosphere Pure and impure waters Food and its adulteration Poisonous substance used in manufactures

Methods of examination of water and air for hygienic purposes, including a knowledge of analytical methods and the interpretation of results

Chemical examination of foods and the detection of common forms of contamination

Chemistry of antiseptics and disinfectants

Physics—General laws of Heat, Mechanics, Pneumatics, Hydrostatics and Hydraulics in their application to warming Ventilation, water supply and drainage Sources, storage and purification of water supply

Geology—Soils, clays, rocks, sedimentary rocks Springs Natural gases Brackish waters and influence of contact of sea water with ordinary fresh water Ordinary constituent of fresh water and sea water, solid matter and soluble constituent not separable by filtration

The Geological conditions determining the healthiness of sites for dwellings Causes

Climatology—A general knowledge of meteorological conditions, Meteorology in relation to health, meteorological instruments, their construction and use Reading and correction of instruments and tabulating the results of meteorological observation

(b) *Microscopy*—The recognition of (1) the constituents of food such as starches, muscular fibre, &c., (2) of the chief fibres of clothing such as wool, cotton, silk, etc., and (3) of constituents of ordinary dust and deposits from water Detection of the common forms of Adulteration of food by the microscope Etiology of Diseases including Pathology Microscopic impurities of air and water

Bacteriology and Parasitology—Pathology of Epidemic and Endemic diseases Influence of unwholesome food, air, water, occupation, dwelling, climate, season soil The morphology of microbes, artificial cultivation of microbes staining of microbes in fluids and in tissues Modes of inoculation and special characters of pathogenic microbes, Special characteristics with practical work on pathogenic micro-organisms Aerobic and Anaerobic Bacteria The general pathology of infection

Nature of immunity from infective disease and modes of producing it with evidence of having received practical instruction in those diseases of animals that are transmissible to man Antiseptics and disinfectants

Parasites and other organisms infecting foodstuffs or the human body

The methods of bacteriological investigation and analysis and the bacteriology of water, air, food and soil

(c) *Hygiene*—Conditions of healthy nourishment, lodging and activity The hygiene of public and private buildings and of particular occupations The origin, causation, symptoms, propagation, geographical distribution and prevention of the epidemic, endemic and other infective diseases, both of temperate and of tropical climates Nature and origin of parasitic diseases Effects on health of overcrowding, vitiated air, impure water, polluted soil and bad or insuffi-

cient food Unwholesome trades and the diseases to which they give rise and the prevention of nuisances arising therefrom Nuisances injurious or dangerous to health The prevention and control of epidemic diseases by isolation, disinfection, vaccination and other methods Quarantine Hospital for infectious diseases Conveyance of the sick Prostitution Diseases of animals and vegetables in their relation to the health of man Famine diseases Poisons in manufactures in commercial and domestic use Causes and conditions which produce climate, general effects of climate, acclimatization

(d) *Sanitary Law and Sanitation*—

(i) Laws and Statutes relating to Public Health enacted in Great Britain and in India, including the model By-laws of the local Government Board The Famine and Jail Codes, the Military Regulations and the duties of Health Officers and Port Surgeons and their subordinates

(ii) Domestic and general sanitation of houses, schools, factories and workshops, and of villages and towns

(iii) Regulation of offensive, dangerous or unhealthy trades and occupations

(iv) Inspection of slaughter houses, cow sheds, etc

(v) Inspection of meat and other articles of food

(vi) The methods applicable to the medical investigation of epidemics

Sanitary Engineering—(a) Water supply (b) Drainage, sewerage and disposal of refuse (c) The construction of dwellings, barracks, hospitals, schools, factories, etc., in accordance with the principles of warming, ventilation, drainage, water supply, etc (d) Geological data referring to the above (e) Reading and interpretation of plans, sections, scales of drawing, etc

Vital Statistics—Calculation of population, birth rate, marriage rate and death rate, mortality from zymotic diseases, sickness rate, relation between occupation and mortality, life tables, their construction and interpretation of the value of statistical facts average and methods, specially in reference to India

(e) *Sanitary reporting*—The candidate will be required to visit and report upon the sanitary condition of some locality assigned to him by the Examiners

7 As soon as possible after the examination, the Syndicate shall publish a list of successful candidates arranged in alphabetical order If, in the opinion of the Examiners, sufficient merit be evinced a University gold medal will be awarded to the candidate who shall have passed with the greatest distinction

Service Notes.

To be a Companion of the most Honorable Order of the Bath (Military Division) Colonel Henry Kellock McKay, C I E, Indian Medical Service

THE services of Captain H M Mackenzie, M B, I M S, are placed temporarily at the disposal of the Government of the Punjab

W S J SHAW, I M S, appointed to officiate as Superintendent of the Punjab Lunatic Asylum, assumed charge of his duties on the afternoon of the 30th of June 1906, relieving Captain C J Robertson Milne, I M S

MAJOR W R. CLARK, I M S, Civil Surgeon, Ambala has obtained privilege leave of absence for 24 days, and furlough for one year eleven months and six days, with effect from the 14th of July 1906

CAPTAIN J M WOOLEY, I M S, Superintendent of the Bhagulpur Central Jail, to act as Civil Surgeon of Bhagulpur, in addition to his own duties

CAPTAIN C A LANE, I M S, Civil Surgeon, is transferred from Bhagulpur to Patna, with effect from the afternoon of the 6th July 1906

SENIOR Assistant Surgeon Khirode Chandra Chowdhury is appointed temporarily to act as a Civil Surgeon, and is posted to Nadia

MAJOR B C OLDHAM, I M S, Civil Surgeon of Patna, is allowed privilege leave combined with furlough for fifteen months from the 6th July 1906

MAJOR A R ALDRIDGE, M B, Royal Army Medical Corps, to be Sanitary Officer, Army Head Quarters vice Captain H E M Douglas, V C, D S O, Royal Army Medical Corps, vacated

MAJOR M A KIR, Indian Medical Service, is confirmed in the appointment of Staff Officer, Army Bearer Corps, Northern Command, *vice* Lieutenant-Colonel J Shearer, M.B.D.S.O., Indian Medical Service, appointed Principal Medical Officer, Burma Division, *vice* Colonel W O'Hara, Indian Medical Service

COLONEL W O'HARA, Indian Medical Service, to be Principal Medical Officer, Burma Division, *vice* Colonel T J H Wilkins Indian Medical Service, transferred to the 9th (Secunderabad) Division. Colonel O'Hara will, however, officiate as Principal Medical Officer, Bangalore and Southern Brigades, until further orders

LIEUTENANT COLONEL J SHEARER, M.B., D.S.O., Indian Medical Service, is confirmed in the appointment of Principal Medical Officer, Derajat and Bannu Brigades

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of Bengal—Captain F A F Barnardo, M.D., I.M.S., Captain L Cook, M.B., L.M.S.

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of Eastern Bengal and Assam—Captain H B Steen, M.D., I.M.S., Captain O St J Moses, M.D., I.M.S.

THE services of Captain H A J Gidney, F.R.C.S.E., I.M.S., are placed temporarily at the disposal of the Government of Eastern Bengal and Assam

Chota Nagpur Mounted Rifles

MAJOR RALPH HENRY MADDOX, M.D., Indian Medical Service, Medical Officer, resigns his commission

MAJOR ERNEST ALAN ROBERT NEWMAN, M.D., Indian Medical Service, to be Medical Officer, *vice* Maddox, resigned

THE services of Captain W S Patton, M.B., L.M.S., are placed temporarily at the disposal of the Government of Madras

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of Bengal for employment with the Drainage Committee—Captain G E Stewart, M.B., I.M.S., Lieutenant A H Proctor, I.M.S.

22nd Punjab—Captain P G Easton, I.M.S., to medical charge of the regiment.

28th Punjab—Captain D S A O'Keeffe, L.M.S., to medical charge of the regiment.

27th Punjab—Captain W W Jeudwine, L.M.S., to medical charge of the regiment.

34th Sikh Pioneers—Captain T O McC Young, L.M.S., to medical charge of the regiment.

36th Sikhs—Captain F A Walker, I.M.S., to medical charge of the regiment.

53rd Sikhs (Frontier Force)—Captain J Woods, I.M.S., to medical charge of the regiment

CAPTAIN M DICK, L.M.S., is transferred from Minbu and is appointed to act as Port Health Officer, Rangoon, in place of Dr F A Foy, proceeding on leave

CAPTAIN W C ROSS, I.M.S. Officiating Deputy Sanitary Commissioner, Bengal and Orissa Circle, is allowed privilege leave for two months and twenty three days

CAPTAIN R MOL DALZIEL, L.M.S., Superintendent, Central Jail, Buxar, has been granted by His Majesty's Secretary of State for India, an extension of leave for three months on medical certificate.

ASSISTANT SURGEON GOPAL CHANDRA MUKHERJEE made over charge of the Durgam Jail to Captain H B Steen, M.D., I.M.S., on the forenoon of the 10th July 1906

THE services of Military Assistant-Surgeon T H Bonnal are placed at the disposal of the Director General, Indian Medical Service

FIRST CLASS Military Assistant-Surgeon J Fraser is appointed to the civil medical charge of the Minbu district, as a temporary measure, in place of Captain M. Dick, transferred

CAPTAIN H H KNAPP, M.D., I.M.S., whose services have been placed at the disposal of the Government of Burma, is appointed to the civil medical charge of the Magwe district, in place of Mr H E. Wells, transferred

ON relief by Captain Knapp, M.D., I.M.S., Mr H E Wells, M.B., O.M., is posted to the civil medical charge of the Minbu district in place of First Class Military Assistant Surgeon J Fraser, transferred

Assam Bengal Railway Volunteer Rifles

WILLIAM ARTHUR MURRAY, M.B., gentleman, to be Surgeon Lieutenant, to complete establishment, dated 16th April 1906

Royal Army Medical Corps

CAPTAIN ARTHUR E MILNER to be Major, dated 28th April

LIEUTENANT COLONEL J W MACNAMARA, I.M.S., Civil Surgeon, Darrang, is granted leave for one month

LIEUTENANT COLONEL C MONK, I.M.S., has been allowed by His Majesty's Secretary of State for India to return to duty within the period of his leave

CAPTAIN J L MARJORIBANKS, M.D., D.P.H., L.M.S., to be Deputy Sanitary Commissioner, Western Registration District, *vice* Lieutenant-Colonel A V Anderson, M.B., D.P.H., I.M.S.

CAPTAIN F H G HUTCHINSON, M.B., I.M.S., to be Deputy Sanitary Commissioner, Southern Registration District

CAPTAIN R. W ANTHONY, M.B., I.M.S., to be Civil Surgeon, Ratnagiri

CAPTAIN F F BERNARDO, I.M.S., made over charge of the duties of Superintendent of the Rawalpindi Jail to Lieutenant-Colonel S Little, L.M.S., on the forenoon of the 24th July 1906

MAJOR E WILKINSON, I.M.S., Deputy Sanitary Commissioner, Punjab, has been permitted by His Majesty's Secretary of State for India to convert the period from the 5th to the 31st of July 1905 inclusive of the furlough granted to him into "study leave"

CAPTAIN W C H FORSTER, M.B., I.M.S., is placed on special duty under the orders of the Sanitary Commissioner with the Government of India

THE following I.M.S. officers have been elected Ordinary Fellows of Calcutta University—

Colonel R Macrae, M.B., I.M.S.

Major L Rogers, M.D., F.R.C.S., M.R.O.P., L.M.S.

Major D M Moir, M.A., M.D., I.M.S.

MAJOR F P MAYNARD, L.M.S., Professor of Ophthalmic Surgery, Medical College, Calcutta, and Ophthalmic Surgeon, College Hospital, is allowed privilege leave for three months

MAJOR MAYNARD, I.M.S., having gone on leave the duties of Editor, *I M G*, will be carried on by Captain D McCay, I.M.S.

MAJOR F O'KINEALY, I.M.S., Civil Surgeon of Darjeeling, is appointed to act as Professor of Ophthalmic Surgery, Medical College, Calcutta, and Ophthalmic Surgeon, College Hospital, during the absence, on leave, of Major F P Maynard, I.M.S., or until further orders

Indian Medical Service—Specialists—The undermentioned officers are appointed Specialists in the subjects noted, with effect from the date of publication of this order, unless otherwise stated—Fever, Major C N O Wimberley, M.B., 3rd (Lahore) Division. Prevention of Disease, Lieutenant A H Proctor, Ambala, Lieutenant A O Ingram, M.B., Aden. Captain W D A Keys, M.D., Indian Medical Service, is appointed Specialist in Midwifery and Diseases of Women and Children, in the Western Command

Royal Army Medical Corps—Specialists—The undermentioned officers are permitted to continue in the appointments of Specialists in the subjects noted, in accordance with late Military Department No 2457 D, dated 31d June 1905—Fever, Major E S Clark, M.B., 1st (Peshawar) Division, Captain W E Huddleston, 5th (Mhow) Division, Captain C H Hopkins, 6th (Poona) Division. Skiagraphy, Major M Boyle, M.B., Burma Division, Captain J Grech, 7th (Meerut) Division. Dentistry, Lieutenant S O Bowley, M.B., 5th (Mhow) Division. Ophthalmology, Major T McDermott, M.B., Eastern Command, Captain F Kiddle, M.B., Western Command

THE undermentioned Royal Army Medical Corps officers on return from leave are appointed Specialists in the subjects noted—Operative Surgery, Major K M Cameron, M.B.,

3rd (Liaison) Division, Midwifery and Diseases of Women and Children (Captain G T K Maurice, Eastern Command, Laryngology, Captain C W Profeit, M B Northern Command, Otology, Captain J G Berne, Western Command)

THE King has approved of the following promotions among officers of the Indian Medical Service and Indian Subordinate Medical Department made by the Government of India,—Indian Medical Service, Bengal, to be Colonel—Lieutenant Colonel Patrick Alexander Weir, M B, dated 20th October 1905. Majors to be Lieutenant Colonel, dated 1st April 1906—Patrick Heir, M D, Lionel John Pisani, F R C S, William Rice Edwards, C M G, M D, Charles MacTaggart, M B, George James Hamilton Bell, M B, Joseph Thomas Daly, M D, Henry Fooks Ernest Hudson, F R C S, Arthur William Dawson, M D, William Henry Banner Robinson. Captains to be Majors, dated 29th July 1905—George Lamb, M B, Henry Burden, F R C S, Charles Harford Bowle Evans, dated 29th January 1906—John Fisher, D S O, M B, Edward Surman Peck, M B, Stanley Arthur Harris, M B, Ewan Cameron MacLeod, Charles Thomson, M B, David Waters Sutherland, M D, William Selby, D S O, F R C S, Indian Subordinate Medical Department, Bombay to be Senior Assistant-Surgeon, with the honorary rank of Captain—Senior Assistant-Surgeon and Honorary Lieutenant Ignatius Chaves, dated 1st January 1906. First Class Assistant Surgeons to be Senior Assistant-Surgeons, with the honorary rank of Lieutenant, dated 11th September 1905—William Baillie George, Capetan Marie DeSouza Albino Rodrigues, dated 1st January 1909

War Office Pattern Stretchers—It having been brought to notice that mark V (Fair), War Office pattern stretchers are being continually cut and rendered unserviceable through their being improperly closed, it is pointed out that the correct way to close them is to first turn them over, so that the iron locking pieces are uppermost, and then to close them, the canvas falling clear. If they are closed with the locking pieces underneath, the canvas falls between them and is cut.

CAPTAIN R W ANTHONY, I M S, is appointed Civil Surgeon, Sukkur, but will continue to act at Ratnagiri till further orders

CAPTAIN J MASSON, I M S, Captain G. King, I M S, have passed the Colloquial test in Bengali

MAJOR J G HULBERT, I M S, has got privilege leave for five weeks from 1st July

CAPTAIN W B TURNBULL, I M S, has got three months' privilege leave from 20th July

MAJOR O B PRALL, I M S, Superintendent, Central Prison, Lucknow, has obtained six weeks' leave from 18th June or subsequent date

LIEUTENANT COLONEL J ANDERSON, I M S, to hold charge of the Central Prison, Lucknow, during the absence on leave of Major Prall

Examination of Officers for promotion—Grant of Special Certificates—The undermentioned officers having obtained 8 of the marks allotted to the examination in each of the subjects (a) to (i) for promotion applicable to their arm of the service, have been granted "Special Certificates" in accordance with Appendix VII, King's Regulations—

Lieutenant R Kelsall, Indian Medical Service. Lieutenant A C, Ingram, Indian Medical Service

THE services of Captain O St J Moses, M D, I M S, are placed at the disposal of the Government of Bengal for civil employ

THE services of Captain W H Dickenson, I M S, M B, are placed at the disposal of the Bombay Government

THE services of Captain R W Anthony, I M S, are placed at the disposal of Bombay Government

CAPTAIN F G M DEAS, I M S, Residency Surgeon, Gwalior, is granted three months' privilege leave

THE service of Lieutenant Colonel D French Mullen, I M S, Rajputana, are placed at the disposal of the Commander in Chief for employment as a P M O

LIEUTENANT COLONEL O'HARA, I M S, for many years Inspector of Prisons, Madras, has been promoted to be Colonel, *vice* Colonel A F Dobson, I M S, retired. Colonel O'Hara's tenure will reckon from 7th June 1906.

LIEUTENANT COLONEL CROFTS is granted the temporary rank of Colonel while officiating as I G, C H, Bengal, *vice* Colonel Maerac, on leave, with effect from 15th May 1906

CAPTAIN R E LLOYD, I M S, Surgeon Naturalist, is granted six months' combined leave

CAPTAIN O M MATHEW, I M S, is appointed Civil Surgeon, Loimwe, and Southern Shan States, Burma

CAPTAIN A FENTON, I M S, Superintendent, Central Jail, Rangoon, has been granted 18 months' combined leave.

HIS Excellency the Governor in Council is pleased to appoint Lieutenant Colonel O F Willis, M D, I M S, to hold charge of the office of Superintendent of Mahabaleshwar, in addition to his own duties, as a temporary measure, pending further orders

MAJOR L G FISCHER, I M S, Civil Surgeon, Dehra Doon, was granted six weeks' privilege leave from 11th June, and Lieutenant-Colonel Pisani, I M S, Civil Surgeon of Mussoorie, held additional visiting charge of Dehra Doon

DURING the absence on leave of Captain F O N Mell, I M S, Mr D G Mitchell, I C S, holds charge of the Central Jail, Nagpur

LIEUTENANT A F HAMILTON, I M S, was appointed to officiate as Staff Surgeon, Poonah, *vice* Lieutenant-Colonel Bull, I M S, promoted

LIEUTENANT COLONEL E F H DOBSON, I M S, has been granted 87 days' privilege leave from 15th June under Art 260, C S R

THE following appreciative and well deserved notice appeared in the *Punjab Gazette*—

Colonel Bate, C I E, gave over charge of the department on the 11th July last after over 14 years' service as Inspector General. During his tenure of office the jail administration of the province underwent far reaching reforms in every branch, and it is not too much to say that the present high state of efficiency of the department is almost entirely due to his administrative aptitude and energy. The Lieutenant Governor feels great pleasure in placing on record his cordial appreciation of the value of the services rendered by Colonel Bate as head of the Jail Department.

Notice

SCIENTIFIC Articles and Notes of Interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta

Annual Subscriptions to the *Indian Medical Gazette*, Rs 12, including postage, in India. Rs 14, including postage, abroad

BOOKS, REPORTS, &c, RECEIVED—

Dispensary Returns of the Province of E B and Assam for 1905
A Pocket Dose Book By Thos H Bonnar Calcutta Messrs Thacker, Spink & Co
Aneurism of the Abdominal Aorta. F P Nunneley, M D
Rapport sur L'Expédition au Congo, 1903 1905
Diseases of the Nose I B Ball M D 5th Edition
Applied Bacteriology Moor and Hewlett 3rd Edition
The Philippine Journal of Science
Annual Report of Sanitary Board Madras 1905
Short Notes on Vaccination in Bengal 1905—1906 Capt Clemesha, I M S

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM—

Capt P Dec, I M S, Bassein, Major Ernest Roberts, I M S, Simla
Milly Asst Surgn T H Bonnar, Lieut C Allchin Gill, I M S, Major D Green, I M S, Shillong J L Todd, Esq, M D, Runcorn, Lt Col Bruce Skinner R A M C London, Major W G Fridmore I M S Mandalay
Lieut R W MacGregor I M S, Rangoon, Major E R R Newman, I M S, Ranchi, Major S S Thom on, Poonah Asst Surgn H Singh, Doh, Dhulri Capt Cayley, I M S, Asst Surgn Sarsi Lal Sarkar, Capt Patton, I M S, Dr Lingard, Punjab

Original Articles.

BILIOUS TYPHUS RELAPSING FEVER

By W T McCOWEN,

LIEUT, I M S

(With Pathological Notes, By CAPT MACKIE, I M S)

THIS unusually fatal and somewhat obscure form, which a certain proportion of cases assumed in an epidemic of relapsing fever, which originated at the beginning of this year, amongst the muleteers of the Native Cavalry Regiment stationed at Sirur, leads me to suppose that some clinical observations recorded by me may be of interest. In addition the case with which the outbreak selected and completely confined itself to a particular class of men is worthy of note.

The nomenclature of this variety of fever is in itself sufficient evidence of the uncertainty which existed as to its exact classification as I find it referred to under the names of bilious-typhus, bilious typhoid, contagious jaundice fever, and icteric relapsing fever. From the not infrequent fatal issue during the initial stage of the fever and common failure of a relapse to occur, when this period has been successfully tided over, it is easy to understand how this variety should still continue to be regarded as typhus even after Dr Henderson of Edinburgh in 1843 had differentiated by clinical arguments between typhus and relapsing fever.

At the conclusion of the St Petersburg epidemic of 1865, however Dr Zorn (in an article in the St Petersburg "Zeitschrift") recognising the distinction, showed the mortality under two distinct headings deaths from the common form of relapsing fever, and deaths from the bilious-typhus variety of this disease, the mortality in the case of the latter being nearly six times that of the former.

Again, in the Berlin outbreak of 1872, examples of this bilious variety were again forthcoming, and special mention is made of them by Dr Poutifick under that name.

Surgeon-Major Vandyke Carter in his elaborate description of the Bombay epidemic of 1877 also draws attention to this icteric form which he says is commonly spirillar and, having had the advantage of Obermayer's discovery some four years previously, was enabled to make his diagnosis in every case with the utmost accuracy and his failure to demonstrate this specific spirillum in the blood of a small proportion of some 30 cases of this variety selected by him lead to his mentioning it as a form of relapsing fever not without a certain amount of scepticism as is illustrated by the following extract from his brief description of this variety.

"Icteric or Typhus-Bilious, commonly Spirillar"—

"An unusually fatal form of fever distinguished by deep jaundice, etc., was noticed early in the Bombay epidemic and continued to its close. So far as I know it had not been seen of late years previously to 1877 and hence bore a distinct relation to conditions then arising. Most cases I saw were referable to spirillar disease, there remained, however, a residuum of examples not displaying specific blood contamination and yet not to be separated in a clinical sense from the majority. It is, I presume, because experience elsewhere (in the eastern or tropical areas at least) was of similar character that doubts have been expressed respecting the nature of bilious typhoid."

In a severe outbreak of relapsing fever amongst a convict gang working at Visapur (Deccan) as recently as 1902, cases of this variety appeared, from what I can learn, to have been seen. It is, I presume, from the comparatively few epidemics of relapsing fever which have occurred since Dr Obermayer's discovery of a specific organism, gave a reliable method of diagnosis together with Dr Vandyke Carter's failure to demonstrate this organism in a certain number of cases of the bilious typhus variety of fever, that no mention is made of it under relapsing fever in the common description of that disease. Its reappearance in the epidemic which has recently occurred here in which it was accountable for the high mortality, prompts me to invite attention to it and more especially since out of eighteen cases of this type which occurred, the blood of fifteen, which were examined microscopically, all demonstrated the presence of Obermayer's spirillum.

The following brief history of the outbreak illustrates the abruptness of its origin, my first acquaintance with the disease being on my return from camp, where the regiment, with the exception of some recruits and muleteers, had been spending a week at some distance from Sirur. I was informed by the Hospital Assistant who had been left behind in charge of the hospital (Sirur being the station of a single regiment midway between Poona and Ahmednagar), that two muleteers and one recruit had died within three days, all of whom, together with several others had been admitted suffering from fever of three or four days' duration and with one exception, slight jaundice. I found nine muleteers in hospital, all of whom showed febrile symptoms and slight jaundice. In two cases, however, the jaundice was particularly deep and in addition certain abdominal symptoms, to be described later, were present.

The conclusion that the disease was of an epidemic nature was strengthened by finding that the affected men were all of the same squadron and that their houses were either the same or in close proximity to one another, I could detect nothing indicative of cholera, or any variety of plague, there being complete

absence of diarrhoea, no glandular enlargement or severe pulmonary symptoms. Its origin amongst these low class of men, who in their habits are not over cleanly, together with the presence in one case of a rash, which I shall refer to later on under that head, strongly suggested an outbreak of typhus. That night one of the muleteers in whom the deep jaundice and severe abdominal symptoms had attracted my attention died, and a *post-mortem* examination of the body failed to show anything pathognomonic of any particular disease. However, the discovery of the spirillum of relapsing fever in specimens of blood taken from the remaining cases and sent to the Command Laboratory, proved the outbreak to be of this nature, and the examination of blood for this specific organism has since been used in diagnosing every doubtful case, the subsequent occurrence of relapses also assisting towards this end.

As the disease progressed, which it continued to do, despite the removal of the infected squadron into camp, and the complete segregation of all the muleteers as well as every inducement being made to these men to feed and clothe themselves rationally, two distinct types became apparent, the severity and ultimate prognosis differing greatly in each. In the first and happily the commonest variety the symptoms were those of high continued fever of a sthenic type and the sufferers were conscious of all the discomforts arising from this condition—headache, muscular and arthritic pains were most distressing and although mild jaundice, pain and slight enlargement of the spleen were present in a proportion of cases, there were never seen those severe abdominal symptoms which were so diagnostic of the second or bilious typhus variety. In the above form the disease closely pursued that typical course from which it has derived its name. And at the conclusion of a varying apyretic interval which succeeded the critical fall of the initial fever, was followed by a relapse, and this in its turn by a second, and in some cases a third. There were, however, of this variety a certain proportion of undoubted cases of an abortive nature, in which after the conclusion of the initial attack by crisis, a relapse failed to occur.

The other variety which was by far the more severe and fatal, and as I have already pointed out has been referred to by several observers under the name of Bilious-Typhus or Icteric Relapsing Fever, contrasted strikingly with the above. In this variety the febrile symptoms, which in the above common form were the prominent and distressing features, were of comparatively small import, as the temperature never attained any very high degree, seldom reaching above 102° and it was a noteworthy fact that with the onset of the severe abdominal symptoms which were characteristic of this type of fever, the temperature of the patients invariably subsided. These patients usually

attended hospital complaining of comparatively slight fever, which they stated they had been suffering from for some two or three days previously and the thermometer generally showed a rise of one or two degrees. Examination of the blood, however, invariably proved it to be spirillar. After admission the fever persisted with striking uniformity, showing little evidence of morning or evening exacerbations. After four or five days, however, it began to subside and the method of defervescence was in these cases directly opposed to that of the common type, for whereas in that variety a critical fall concluded the febrile stage, in this, the bilious typhus form, it terminated in a gradual manner by lysis.

Shortly prior to or as was commoner, with the advent of this lythic decline, the condition of the patient became rapidly worse, the slight icteric tinge which was apparent in so many cases, developed into a deep jaundice in a remarkably short period, and this symptom I soon learned to regard with the greatest apprehension and one of exceedingly bad augury, as it invariably ushered in the characteristic, and so frequently fatal, abdominal symptoms above referred to. These consisted of severe pain and tenderness over the areas occupied by the liver and spleen, together with considerable and rapid enlargement of these organs, which, in the case of the liver often reached nearly two fingers' breadth below the costal margin, and in the case of the spleen three or four, but so extreme was the tenderness over the whole of these regions that the patients were usually intolerant to the slightest touch. They lay with knees drawn up, and the abdominal muscles rigidly contracted, moaning and crying out with pain. Another phenomenon which so frequently accompanied this distressing condition was abdominal distension, which *post-mortem* proved the result of accumulation of gas in the large intestine. This might almost be said to amount to an inhibitory paralysis of that portion of the gut, as the administration of purgatives, enemata, and the passage of the rectal tube failed in many cases to relieve it. From this onward the condition of these patients became rapidly worse, they lapsed into a state of low muttering delirium, the tongue, which during the febrile period had been coated with a thick yellow fur became dry and brown, sordes collected on the lips and teeth, the pulse became small and quick, and the heart sounds feeble, persistent hiccough developed and in some, marked dyspnoea was apparent, the patients quickly passed from this quasi-typhoid state into a comatous condition in which they died from cardiac failure, the result apparently of some powerful toxic process. When recovery took place—cases of this variety were more often fatal than not—it was, it appeared to me, the result of strong liver stimulants acting on that organ and in addition relieving the distension of the gut, for when these results were achieved the jaundice

often decreased, the liver, and to a less extent the spleen, appreciably diminished in size, the pain and tenderness disappeared and the patients passed on to a tardy convalescence

In my experience of these cases, they were not as a rule followed by a relapse, as of six cases of this description, in which recovery took place, only two showed a subsequent relapse which was in neither case so marked as in the ordinary common type. The association of this decline of temperature by lysis in relapsing fever with the severe bilious-typhus form was observed by Major Vandyke-Carter in the outbreak in Bombay, who refers on several occasions to the severity of cases in which the critical descent was slow, and in alluding to cases of this variety he writes "Bilious-Typhus." This variety of relapsing fever was essentially an "irregular and unusually lythic form accompanied by deep jaundice," and again with reference to six cases in which the defervescence of temperature took place in this manner, he says, "I will add that although it might be supposed that subsidence of the fever by this mode indicated mildness of the attack, yet such was not commonly the case, and all the above cases were severer than usual, exhibiting symptoms approaching continued, *i.e.*, typhus-like form."

The following are the notes of four cases illustrative of this variety which came under my care —

Case No 1 — Muleteer, aged 22, fairly well-nourished, came to hospital complaining of fever which he stated he had been suffering from, for the past two days. Temperature 100°, evening 102°, given purgatives, diaphoretics and diuretics

Second day — Morning temperature 101°, evening 102°, complains of headache, specimen of blood taken

Third day — Morning temperature 101.4°, evening temperature 102.6°. Headache still troublesome, also pain in the back. Given phenacetin grains 10. Conjunctiva slightly yellow

Fourth day — Morning temperature 101.2°, complains of tenderness on left side over spleen which can be made out to be slightly enlarged. Jaundice a little more marked than previous day, liver apparently not enlarged, urine specific gravity 1015, high coloured, bile present, bowels constipated. Evening temperature 102.6°, is slightly delirious, but not noisily so. Given calomel grains 4

Fifth day — Morning temperature 101°, complains of much tenderness over spleen, and also liver. Jaundice deeper, bowels only slightly moved in spite of calomel. Given a mixture containing Soda Sulph, Mag Sulph, Ammon Chlor, Soda Salicylas, and fomentations applied to upper abdomen, also brandy. Evening temperature 100°, again slightly delirious

Sixth day — Morning temperature 99°, he is mildly delirious, and deeply jaundiced. Seems to

to be suffering much pain and distress over liver and spleen, liver can now be percussed just below costal margin, and appears to be somewhat enlarged upwards. Spleen reaches two and a half fingers' breadths below costal margin. The abdomen is somewhat distended and bowels have not moved satisfactorily. Given an enema with little result, later rectal tube passed, a small amount of flatus came away, abdomen still tumid, pulse feeble. Given strychnine and digitalis. Evening temperature 99°. Still in much pain over liver and spleen

Seventh day — Is in low delirious condition and deeply jaundiced, extreme tenderness over whole of abdomen, liver and spleen enlarged on percussion, given turpentine enema, small result, respiration laboured and somewhat dyspnoeic, pulse very weak. Digitalis and strychnine given every two hours, he gradually became unconscious and died the same evening

The specimen of blood taken from this case showed large quantities of spirilla

Temperature chart No 3 is from this case

Case No 2 — Sowar, aged 32, body somewhat ill nourished, complained of fever of three or four days' duration, temperature 102°. Given purge, diaphoretics and diuretics

Second day — Morning temperature 101°, evening 103°. Vomited this morning, bringing up some yellow glairy mucus, complains of headache

Third day — Morning temperature 101°, evening 103°. Conjunctiva slightly jaundiced. Given purgative and liver stimulants. Specimen of blood taken for examination

Fourth day — Morning temperature 101°, evening 102.4°. Skin beginning to show signs of jaundice, bowels acted. Mucous yellow colour, urine high coloured. No albumin. Reacts to Gmelin's test. He does not complain of any discomfort

Fifth day — Morning temperature 101°, evening 101°. Is not quite so well this morning, feels somewhat weak and the jaundice is more marked, complains of a sensation of constriction around the throat, which he says is very parched. Tonsils are somewhat enlarged and injected, tonsils painted with glycerine and tannic acid and fomentations applied to throat, there is also discomfort about the upper abdominal region. Ordered brandy and milk

Sixth day — Morning temperature 100.6°, evening 101.2°. Deeply jaundiced, complains of pain and tenderness over epigastric and hypochondriac regions. Given calomel grains five and fomentation to upper abdominal region

Seventh day — Morning temperature 100°, evening 100.4°. Jaundice marked, pain and tenderness over liver and spleen very distressing, bowels only slightly moved

Eighth day — Morning temperature 100°, evening 99.2°. Jaundice deep, severe tenderness and pain over splenic and hepatic areas, both organs enlarged. Abdomen somewhat distended,

tense and tympanitic, given a turpentine enema, no result, distension persists, rectal tube passed, a small amount of flatus came away, but tenseness not relieved, his condition is becoming bad, pulse small and weak, strychnine and digitalis given every four hours

Ninth day—Last night he was slightly delirious and this morning he is in practically the same condition. Abdomen still distended, pulse very feeble, in fact hardly perceptible at wrist and heart, sounds bad, breathing is laboured and moist rales to be heard at bases of lungs, his condition is critical. Injections of strychnine given and nutrient enemata, as it is difficult to get him to take food by mouth. However, he lapsed into an unconscious state and died the same afternoon. The blood of this case also contained spirilla. Temperature chart No 4 shows the temperature of this case.

Case No 3—Muleteei, aged 26, came to hospital with temperature 103°, very weak and slightly jaundiced, appears to have been ill for nearly a week past.

Second day—Temperature 101°, evening 101.2°, is still very weak. Vomited this morning, vomit greenish-yellow coloured. Is suffering from conjunctivitis on right eye, lotion and drops ordered, otherwise no change from previous day.

Third day—Morning temperature 101°, evening 101.6°. Complaining of pain over splenic area, which is also tender and spleen can be made out just below costal margin. Conjunctivitis as before. Mustard plaster applied to the splenic region, he seems slightly more jaundiced.

Fourth day—Morning temperature 101°, evening 100°. Spleen still painful and enlarged, does not seem to have derived much relief from plaster, liver also painful to-day, but no enlargement below costal margin can be found, it however appears to be enlarged in an upward direction. Complains of difficulty in breathing, which appears to be laboured, but nothing abnormal can be discovered on auscultation. Skin dry, and tongue very furied. Given calomel grs v.

Fifth day—Morning temperature 99.4°, evening 99.6°. Much depression. Liver and spleen very painful, spleen has increased in size, and reaches nearly two fingers' breadths below costal margin, the liver although painful is not enlarged downwards. Fomentations to upper abdomen ordered. Bowels acted. Towards evening became delirious, muttering to himself and trying to get out of bed. Given chloral and bromide, also stimulants.

Sixth day—Is in a lethargic condition, jaundice extreme. He cries out when the liver or spleen are pressed. Spleen enlarged downwards, liver not, but undoubtedly reaches higher than normal, no distension of abdomen, although the muscles are held rigid when one places one's hand on it. Tongue dry and brown, pulse small and irregular. Stimulants increased.

Seventh day—He was slightly delirious last night, this morning he is in a semi-conscious state, and roused with difficulty only, there is much tenderness over spleen, and when liver pressed just below ensiform cartilage he cries out. Deeply jaundiced, tongue dry, lips and teeth covered with sores. Much dyspnoea present and on auscultation moist sounds are heard showing congestion of bases of the lungs, pulse very weak and small and heart sounds also very poor, first sound cannot be heard at apex. His condition became rapidly worse and he died at mid-day. Spirilla present in blood examined on two occasions. Chart No 6 is from this patient.

The course pursued by other cases of this variety, which ended fatally in no marked degree differed from the above three, in each the jaundice and abdominal symptoms were the striking features.

The following case is one which ended fatally in a very short period after admission into hospital, and although abdominal symptoms were extremely severe and rapid in onset, yet the only indication of jaundice was a slight icteric tinge of the conjunctiva—

Case No 4—Muleteei who had been sent to the village, some thirty miles distant previously referred to in connection with the contraction of the disease at the commencement of the outbreak, states that he developed fever whilst there. He remained there some two or three days with fever and was finally brought in in a cart. On admission his condition was very bad, and he was so weak that he could hardly raise himself and was unable to stand. He complained of much distress over the abdomen. Temperature 100° on admission. Evening 101.4°, became delirious towards evening. Given milk, brandy and other cardiac stimulants, as pulse is extremely weak and heart sounds feeble.

Second day—Temperature 99.6°. He is in the typhoid state. Abdomen slightly tumid, liver slightly enlarged, spleen much, three fingers' breadths below costal margin. There is no jaundice of skin, but on examination the conjunctivæ are more yellow than natural. Heart became rapidly weak, he gradually sank and died. No specimen of blood was taken from this case, or I feel confident that spirilla would have been found to have been present on examination. I am inclined to the opinion that in this case the fatal issue was so rapid that marked jaundice had no time to develop.

INDIVIDUAL SYMPTOMS

In the following discussion of the various symptoms individually, together with their origin, a comparison is drawn between the characters under which they occurred in either variety of the fever.

Prodroma—Seemed to me to differ little from those of ordinary febrile diseases, a general

BILIOUS-TYPHUS RELAPSING FEVER

By Lieut W T McCOWEN, I.M.S

Chart No 1 (Common Variety)

Sotwar H—

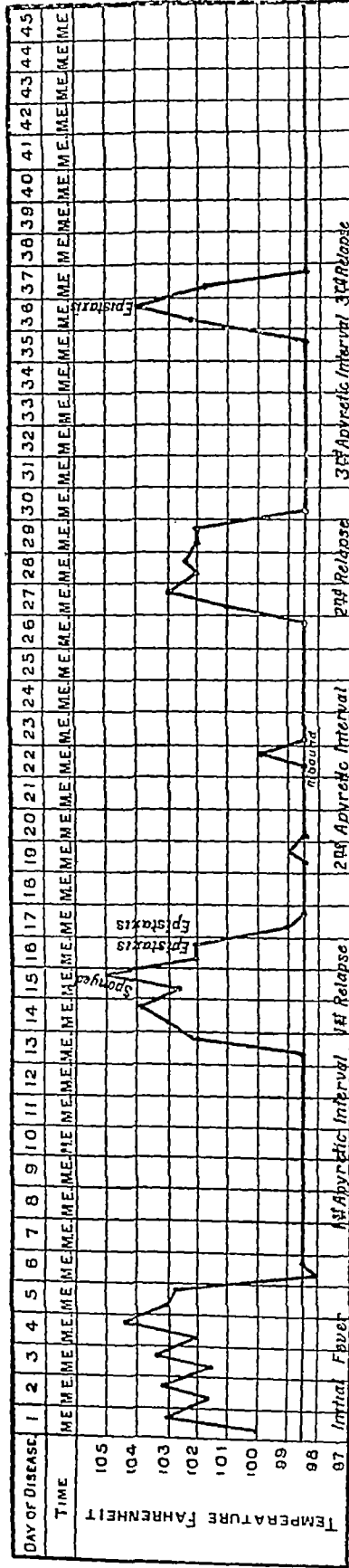


Chart No 2 (Common Variety)

Sotwar B—

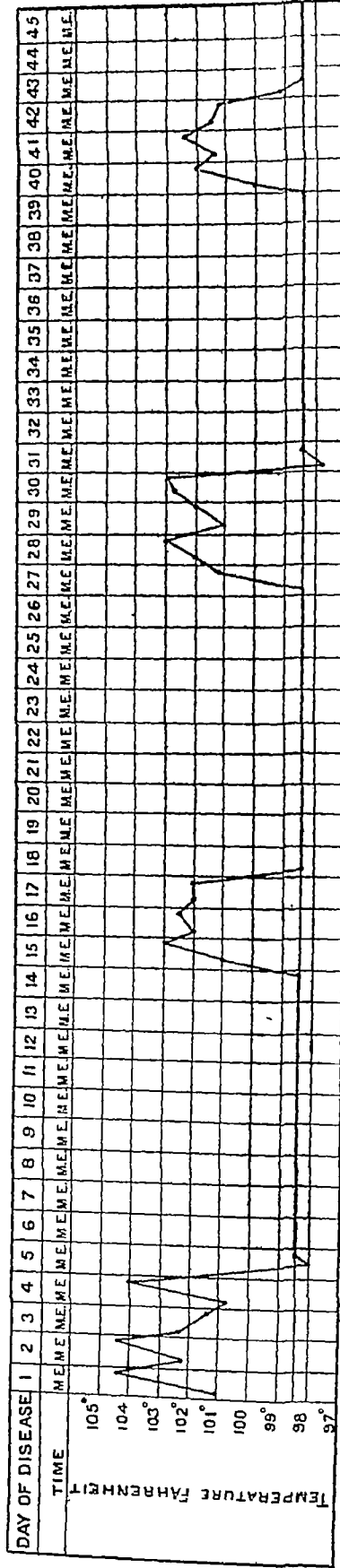
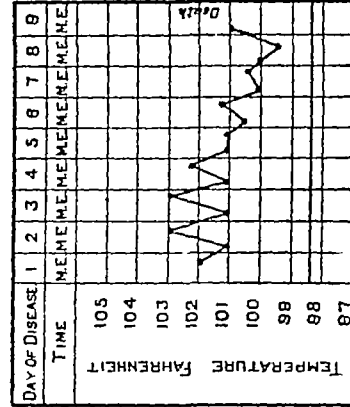
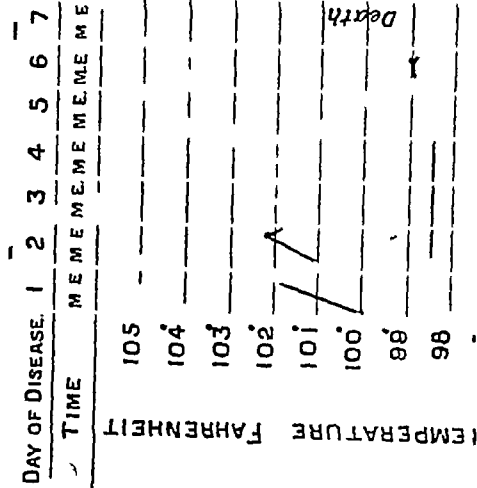


Chart No 3 (Bilious Typhus Variety)
Muledeer

Chart No 4 (Bilious Typhus Variety)
Sotwar N—



BILIOUS-TYPHUS RELAPSING FEVER

BY LIEUT W T MCCOWEN, I M S

Chart No 6 (Bilious Typhus Variety)
Muleteer B—

Chart No 5 (Bilious Typhus Variety.) Muleteer M—

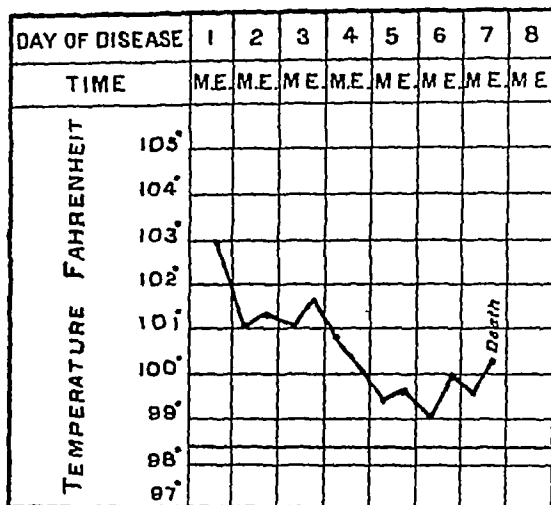


Chart. No 7 (Bilious Typhus Variety) Recovery and Subsequent Relapse

Muleteer R—

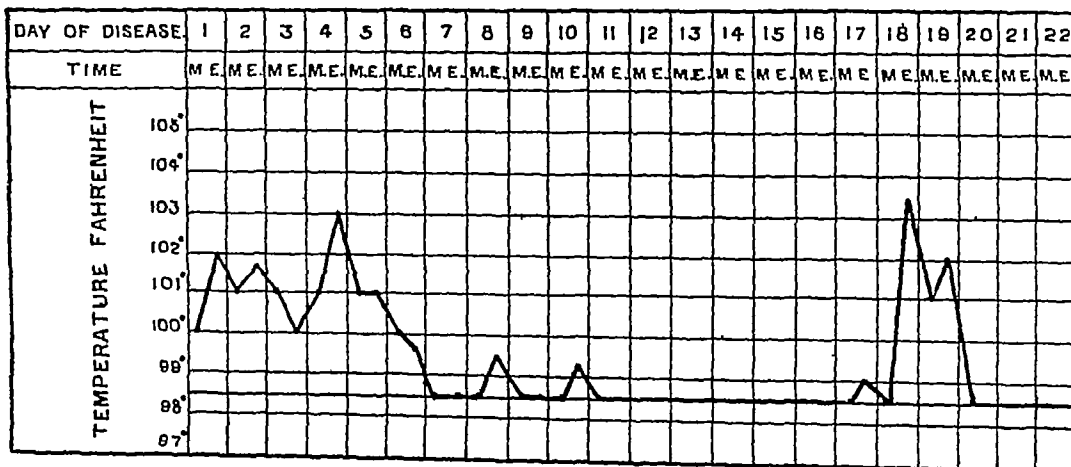
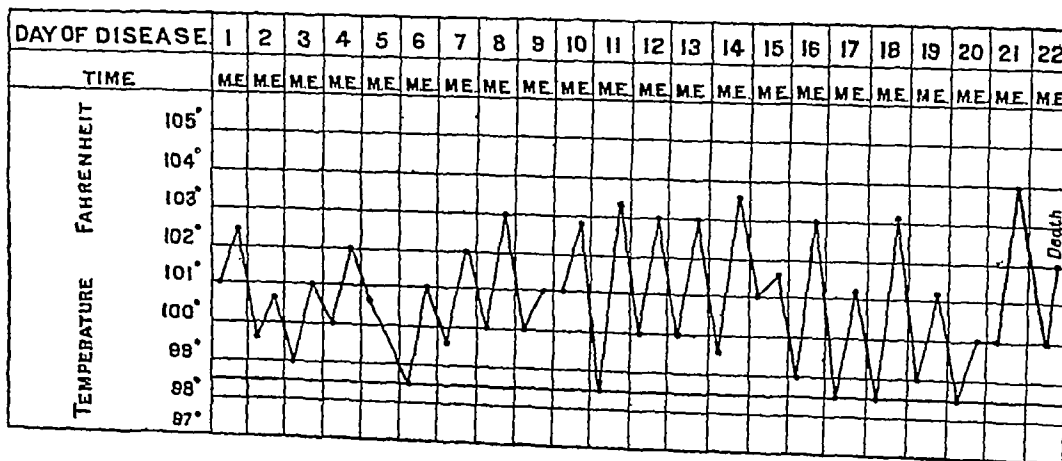


Chart No 8 Relapsing Fever complicated by Malaria

Muleteer S—



feeling of malaise, headache and pains in the back and limbs were the usual symptoms which heralded an attack. On one occasion I found an attendant who had been suddenly seized with vomiting whilst on duty. The following day he complained of feeling unwell and had a temperature of 100° ; mild fever lasted for three days, and had it not been for the presence of spirilla in his blood, one would hardly have credited it with being relapsing fever, as no subsequent relapse occurred.

The Temperature—The striking contrast between the temperatures under the two conditions have already been commented on. The subsidence by lysis was invariably associated with the bilious-typhus variety as in not a single case in which the febrile period concluded with a crisis were the severe symptoms already referred to, seen. The height of the fever and the severity of the cases also were inversely what one would have anticipated, and I have previously quoted Major Vandyke-Carter's remarks with reference to this asthenic type. In the common variety I was particularly struck with the depressent effect produced on some patients by the abruptness of the critical fall which in many cases and particularly those in which the acme of the fever was inordinately high, often fell several degrees below normal and left the patients so collapsed as to necessitate the use of strong stimulants in order to tide over this short but critical period.

The accompanying temperature charts illustrate the various types of fever met with in this epidemic.

ABDOMINAL SYMPTOMS

Jaundice—This characteristic symptom from which the second type of fever takes its name has always been connected with relapsing fever and in the epidemic from which my data are taken was present in a mild degree in a large proportion of cases of the typical variety, but when of rapid onset and great intensity together with the severe abdominal symptoms of hepatic and splenic origin it might always be associated with the graver form. Dr. Rabagliati in his description of this disease writes with reference to it—

"I cannot agree with those observers who look on jaundice as a formidable symptom, but it is probable that different epidemics have shown widely different characters in this and other respects."

It is, I conclude, because in the epidemic at Bradford in 1870, which Dr. Rabagliati witnessed, this variety was not seen and this would strongly suggest itself from the small mortality which resulted from that outbreak. In the recent epidemic at Sirur when jaundice was of great intensity and rapid development, I always regarded it as a danger signal.

To offer an explanation of this phenomenon is not so simple as it might at first appear, as it

cannot be satisfactorily attributed to obstructed causes in the duct itself, and although the light colour of the stools indicated a diminished flow of bile, yet *post-mortem* examination never showed inflammation or lessening of its calibre which would serve to account for the intensity and rapidity of onset. There can be no doubt that the production of jaundice was the result of some toxic influence, either the spirilla themselves or their products, and when one considers the enormous quantities in which they were present (one to every three or four blood corpuscles), it is doubtless due to their action or that of their products, on either the corpuscles themselves of the blood in which they exist in the active febrile state, or directly on the liver itself. A probable explanation and one which microscopic examination of tissue sections to some extent corroborates, is hæmatolysis, a wide-spread extravasation and destruction of blood taking place in nearly all the organs as evinced on section. This is broken up and the hæmoglobin set free carried to the liver and is in all probability directly or indirectly responsible for the jaundice. Nothing microscopic was seen suggestive of catarrh of the bile ducts and viscosity of the bile as a causative factor in its production. This symptom in the bilious-typhus variety in many ways resembled those of cholemia and the fatal form of toxic jaundice, convulsions, however, were never seen.

Liver—The severity of the symptoms above described originating in connection with this organ together with the rapid increase in size which it underwent would suggest that a simple explanation would be forthcoming on *post-mortem* examination, but such was not the case. Hepatitis, which from the acuteness and rapidity of development one would have expected, was not present in a single case that was examined, nor was this enlargement the result of simple congestion. The naked eye appearance after death strongly suggested a degeneration having taken place probably of a fatty nature, and this together with interstitial changes were the only explanation obtainable. The enlargement of the liver in an upward direction which was seen is interesting and the increased tension exerted by the overstretched diaphragm in all probability aggravated the symptoms.

Spleen—When one considers the important functions which this organ performs in connection with relapsing fever it is not surprising that it should be the seat of pathological and symptomatic conditions. Metchnikoff observed that with the disappearance of the spirilla from the blood during the febrile period they were still present in large quantities in the spleen, having been taken up from the blood and conveyed there by the phagocytes. In this organ apparently their destruction takes place by aid of the microphage cells and in order to meet this rapid preternatural demand, increased congestion and multiplication of the cell elements

together with necrotic changes are the natural results, which manifest themselves in enlargement, pain and tenderness of that organ. In every case which was examined after death the spleen was enlarged to a greater or lesser degree as in the case of the liver, macroscopic evidence of perisplenitis was never seen.

Respiratory Symptoms—The frequency with which the lungs suffer in this disease is shown by the fact that out of seven cases on which a *post-mortem* examination was held not in a single one could they be said to have been in an absolutely healthy condition. During life, however, the respiratory symptoms were seldom so pronounced as one would have expected, the rapidity and quality of the breathing seldom suggesting these organs as the seat of any serious trouble. In the common form towards the acme of the attack pneumonic congestion of the bases was frequently present, but the true solidification with tubular breathing of pneumonia was never found. In the bilious-typhus variety dyspnoeic symptoms were, in many cases, in all probability aggravated by the upward dome-like enlargement of the right lobe of the liver which in several cases had so encroached on the thoracic space as to seriously interfere with the proper working of the right lung. Cough was a comparatively uncommon symptom, and when present was never particularly distressing, in the bilious-typhus variety, however, when abdominal symptoms became severe the patient's distress was much increased by this symptom, if present.

Circulatory System—The pale, flabby, friable condition of the cardiac muscle as seen *post-mortem* affords an easy explanation of the small irregular pulse and weak rapidly failing condition of the heart which preceded the fatal issue. In the common variety with its high sthenic type of fever the pulse, although the impulse was invariably weakened, was characteristic of that form of fever being full and bounding and the heart sounds loud and booming, and contrasted with the asthenic variety in which the rapidly failing condition of this organ so frequently ended fatally. At the conclusion of the fever by crisis the rate of the pulse often became abnormally reduced, and as previously stated this diminution in rate was accompanied by a corresponding weakening, rendering this brief period not without danger.

Headache and Epistaxis—Headache was equally complained of in both varieties of the disease, but in the commoner form with its high fever it was unusually severe, and this severity was always proportionate to the height of the temperature. Epistaxis was not an uncommon occurrence in the common type, and was intimately connected with the above as well as with the critical fall, for in cases in which headache was most severe the advent of epistaxis usually afforded rapid relief. Bleeding from the nose was also closely associated with the crisis, and in the

greater number of cases in which it occurred, it immediately preceded or accompanied this decline. In one or two cases it was exceptionally severe, necessitating the use of styptics and plugging of the nostrils in order to arrest it. In two cases it lasted over several successive days occurring afresh each day.

Muscular and Osseous pains—These distressing symptoms, which, although frequently complained of during the prodromal stage, reached their maximum severity, however, during the febrile period. They were chiefly confined to the back and loins, legs and thighs, somewhat resembling the pains of acute rheumatism and were often so intense and so interfered with the patient's rest as to require the administration of hypnotics. Although present in some cases of the icteric variety, they were never so severe as in the above commoner form. Tenderness on pressure was observed in some case, but not in a single case was there any indication of effusion into or swelling of the joints.

Rash—Many and various kinds of rashes have been described in connection with relapsing fever, out of 79 cases which came under my care in the epidemic in question, only in two cases (of the common variety) was it present, and on each occasion its appearance was that of a reddish mottling of the skin. In not a single case was the petechial eruption described by some observers as occurring in connection with the bilious-typhus variety seen. Sudamina was very common, specially at the crisis, and a peculiar burning sensation, which patients described as a feeling as if their skin was on fire and more particularly localised in the soles of the feet, was present in several cases and very troublesome.

The Bowels—Constipation was the almost invariable rule in this epidemic and in fatal cases of the bilious variety was of so obstinate a nature as to almost suggest paresis of the gut. This may have been to some extent dependent on the diminished supply of bile to the contents and in part to the action of the fever toxins on the intestinal muscle, and the resulting accumulation of gas in the colon was a serious addition to the already grave abdominal symptoms. The colour of the stools was in most instances light-yellow, showing that the flow of bile to the duodenum did not entirely cease. Diarrhoea was present in three cases during the period of fever and occurred on several occasions in connection with the critical fall, blood, however, was never seen in the stools.

The Urine—Exhibited the usual characters found in high febrile conditions, and in addition the presence of bile pigment to a greater or lesser degree. A small amount of albumin was not uncommon, and in one patient in whose urine there was an unusually high percentage, the kidneys after death showed extreme congestion. A critical discharge of urine occurred in some cases.

POST-MORTEM APPEARANCES

The following were the pathological conditions present in seven fatal cases of the bilious typhus variety on which *post-mortem* examinations were held. The condition of the bodies which on the whole were fairly well nourished together with the intensity of the jaundice which the *post-mortem* pallor somewhat accentuated was particularly striking, and when opened this icteric tinge was found to pervade almost every organ.

Lungs—After death two distinct conditions of these organs were seen which were diametrically opposed to one another. In two cases on opening the thorax I was surprised to find lungs in a pale, bloodless and collapsed state, and so reduced in size as to leave an abnormally large proportion of the heart surface exposed. In these cases there were no signs of any previous congestion and on section they showed no other abnormality. The enlarged liver and spleen and the distended stomach, the combination of which by forcing the diaphragm upwards may have contributed to this condition. In the remaining five cases the lungs in each showed a varying degree of pneumonic congestion at the bases.

In one case on examination the lower two-thirds of the middle lobe of the right lung was found in a hard firm congested condition, the result apparently of a diffused infiltration of the tissues of that portion of the lobe with blood, and although no thrombus or embolus was found, this was in all probability the result of pulmonary apoplexy. The remaining lobes showed only congestion of the bases.

Heart—In this organ the pathological conditions were in all seven cases most consistent. On opening the pericardium there was present in six cases a quantity (on an average two ounces) of clear bile-stained fluid the result of passive effusion, the pericardium showing no indications of pericarditis. In every case the condition of the heart was the same, the muscle being pale and friable, doubtless the result of some toxic degeneration, probably fatty and not unlike that seen in fatal cases of diphtheria from cardiac failure. In one case only was there obvious dilatation, and examination of the interior of the remaining six showed no signs of valvular disease.

Liver—Contrary to one's expectations the liver with one exception showed no signs of active congestion, being in six cases paler than normal, mottled and bile stained. It did not appear to be more friable, on the contrary on two occasions it cut with an abnormally tough gritty feel. The degree of hypertrophy varied and my notes on these autopsies record as follows—

In one case slight enlargement, in four cases moderate and in two the increase in size was very great. The spleen was correspondingly enlarged, attaining its maximum in the two last

cases. The largest of these seven livers weighed 5lbs 10ozs, there were no indications of acute perihepatitis, the gall bladder was never distended, and in four cases contained some green viscid bile.

The Spleen—In all seven cases was enlarged, and as in the case of the liver this increase in size was of a varying degree, and as already referred to, was to some extent proportionate to the size of the liver, the largest spleen, weighing 39½ ounces, was taken from the same body as the liver whose weight is quoted above. The organ was invariably softened, but whether this may not have been due to the unusually rapid onset of *post-mortem* softening, which I understand occurs with great rapidity in tropical climates it is difficult to say. I am inclined to regard it as a pathological rather than a *post-mortem* condition, as in every case in which an autopsy was held, it was performed within three hours after death. In two cases only was the pulp congested, and in the other five it appeared to me to be somewhat lighter than usual, and in two of these five cases there were present in the pulp a number of small yellowish patches, which I attributed to necrotic changes, in one a recent infarct was observed, but with these exceptions no other naked-eye changes of an abnormal nature were detected.

The Intestines—The abdominal distension which was present in five of these seven cases examined *post-mortem*, as well as in others, on which no examination was held after death, was found to be due to an accumulation of gas in the large intestine. In almost every case the stomach appeared dilated, but as it is the custom with these men to eat a great quantity of vegetable food at a sitting, when they can procure it, and to imbibe large quantities of water, this was not surprising. The whole of the alimentary canal showed an icteric tinge, and muscular tissue had a distinctly waxy appearance.

The Kidneys—Only on two occasions were these diseased, being much hypertrophied. The capsules stripped easily, and on section the organs were found to be congested and cortex broader than normal.

ÆTIOLOGY AND MORTALITY

Although uncomplicated, epidemics of relapsing fever have not as a rule shown a high mortality, nevertheless in those in which examples of this icteric variety have occurred, the death-rate has invariably exceeded this ratio. In the St Petersburg epidemic of 1865 the mortality from the common form was 9.96 per cent, whilst from the bilious-typhus variety it was 46.39 per cent, and in Bombay in 1877 in which this severe type was again seen, the death-rate was 18.02 per cent. Out of twenty cases of this icteric variety selected by Major Vandyke-Carter, fourteen ended fatally, and he

writes with reference to this high mortality as follows —

"By general assent epidemics differ in fatality according to the frequency of the severe bilious type of fever, for as this becomes more frequent, so is the outbreak severe. Bilious typhus is not seen in some mild epidemics of relapsing fever, but was early evident in the severe outbreaks at St Petersburg and Bombay. On the other hand it first supervened only at the end of 15 years at Kasan."

In the recent epidemic at Suur the mortality reached 20 per cent, and was, as will be seen by the following table, chiefly due to the severe form —

Type	No of admissions	No of recoveries	No of deaths	Percentage of deaths
Common variety	61	57	4	6.5
Bilious typhus variety	18	6	12	66.6
TOTAL	79	63	16	20.25

Dr Murchison estimated the mortality at four per cent, but his statistics were taken as far as I can gather from epidemics in non-tropical countries, it appears, however, that in outbreaks occurring in tropical climates the disease seems to acquire increased virulence, and Major Vandyke-Carter draws attention to this fact in the following summary of a comparison between European outbreaks and that of Bombay —

"The summary of these analyses is that in India relapsing fever was uncommonly severe, early causing death and that mainly from fever itself without there being seen at all frequently the deep jaundiced type known as typhus-bilious."

Several of the large epidemics, Edinburgh and Glasgow in 1843, Bradford in 1869, and Liverpool in 1870, on which the mortality statistics are to a large extent based, were, I gather, mixed epidemics of relapsing fever and typhus, and the proportion of the latter disease was, I find, considerable. The observers of those outbreaks had not the benefit of the discovery of a specific spiculum to aid them in their diagnosis, and it is more than probable that cases of this bilious-typhus variety, did they occur, were included in the category of typhus, the mortality from which was always large.

The conditions of famine and deprivation, which have invariably been associated with outbreaks of relapsing fever, were not wanting in this epidemic, for owing to the scarcity of rain during the past year and consequent failure of crops, this portion of India has, for the past four months, been under famine conditions, and the prices of food have risen considerably. It is difficult to say from where these men originally contracted the diseases as in Suur itself,

which consists of a small native bazar, which has grown up in the immediate vicinity of the regimental lines, there has been, judging from the records of cases treated in the Civil Dispensary here, very little fever, a certain number of people from the surrounding villages have, however, applied for medicine, and there is no doubt that the disease is prevalent in the district. At Poona on the one side and Ahmednagar on the other, many cases have occurred, and in Bombay itself the disease is practically endemic with seasonal accessions.

The men of the regiment insist that the fever was brought by muleteers from a village some 30 miles distant, the Hospital Assistant of a neighbouring dispensary, to whom I applied for information, however, informs me that he has not met with any cases of relapsing fever. It is certainly a fact that out of a number of muleteers who were sent there in connection with some regimental work, two were brought back suffering from the fever in the early stage of the outbreak.

One of the striking features of the disease was the preference it exhibited for two classes of men, the greater proportion of cases which occurred were amongst the muleteers, but of the fighting men who were attacked they were in every case Jats of one or other of the two Jat squadrons. Besides these men the regiment consists of one squadron of Sikhs and one Deccan Mahomedans—the situation of the lines in no way explains this as these Jat squadrons do not inhabit adjacent lines, being separated by an intervening squadron of Mahomedans and their lines extend into those of both the Mahomedans and Sikhs. As soon as the infectious nature of the disease became apparent, all the muleteers were segregated in tents, and one of the squadrons amongst whom several cases had occurred also placed under canvas, but cases subsequently occurring amongst the Jats of the other squadron necessitated the vacating of their lines also. The following table shows the proportion in which cases occurred amongst the various classes of men —

Class of men	No of Admissions	No of Deaths
A Squadron (Sikhs)	Nil	Nil
B do (Jats)	9	2
C do (Mahomedans)	Nil	Nil
D do (Jats)	5	1
Muleteers (from United Provinces)	63	13
Bhisties and Syces (Natives of Deccan)	Nil	Nil
Ward Orderly	1	Nil

The muleteers are equally distributed between the squadrons and inhabit houses in the lines of their respective squadrons, which are similar to those occupied by the sowars. The outbreak originated amongst the muleteers of the Jat squadrons, and before it was finally arrested every muleteer in these two squadrons had been attacked. A far smaller number of those belonging to the other two squadrons contracting the fever, they also were segregated in tents

but at some distance (quarter of a mile) from the others. No cases occurred amongst the *syces* or *bhisties* who are natives of this part of India, then lines, however, are quite separate and at some distance from where the muleteers live, nor were the hospital sweepers, who were daily handling the urine and faeces of the infected men, attacked. Both Jats and muleteers are natives of the United Provinces, and in addition are to a large extent non-meat eaters, the Jats from hereditary custom and the muleteers from force of circumstances. The Jats of late have been suspected of a tendency to underfeed themselves and require careful watching in this respect, and there can be no doubt that, the muleteers were depriving themselves, partly owing to the high prices of food, in part to the necessity of maintaining their wives and families, whom they left behind in their country. Overcrowding cannot be considered as a factor in any way contributing towards the outbreak, as there was ample room space and good ventilation, and this is in accordance with Dr Murchinson's views that relapsing fever is a disease of deprivation, whereas typhus is produced by overcrowding and deprivation combined. The only explanation that I can offer is that the vitality of these two classes of men was in all probability reduced from deficiency in either the quantity or quality of their food, rendering them more susceptible to infection.

The highly infectious nature of the disease is shown by the large number of cases in previous epidemics amongst those whose duties necessitated their contact with the sick. In this outbreak the total number of cases amongst such men was eight, one ward orderly and seven attending men taking it, of whom one man died from the bilious-typhus form, he had been attendant on his brother, who himself also died of the same variety. As far as possible, however, convalescents were utilised for this work. The attending men were in constant attendance day and night on the sick, the ward orderly, however, was not brought into such intimate contact with them and resided outside the hospital.

The mode of conveyance of the spirochæta whereby infection is brought about, as well as its possible relation to the trypanosoma, are questions at present much under discussion. Recent investigations tend to show that like malaria, relapsing fever is in all probability transmitted by some insect of the blood-sucking species (bug, tick, or mosquito), and Drs Dutton and Todd's investigations have shown that the method of propagation of spirochælosis of Africa is by means of a particular variety of tick "*Oritodoros Moubata*". Owing to the persistent drought Sirri is practically free from mosquitoes, and they cannot, therefore, in this instance, be reckoned as a factor in spreading the disease. Bugs are plentiful here, but not more so amongst the Jats than the Mahomedans and Sikhs. Ticks are also numerous, and Captain Christo-

pheris, I.M.S., who kindly examined some, has identified them as belonging to the species of *Rhipicephalus*. This variety is, I believe, parasitic to animals, but it is uncertain whether it ever bites human beings. When the squadrons had remained free for a fortnight they were permitted to return, then lines in the meantime having been lime-washed and the infected houses fumigated, but soon the occurrence of fresh cases necessitated their moving, and it is an interesting fact that not until strong measures which would result in the destruction of bugs and ticks were taken throughout the whole of these squadrons, consisting in the saturation of the floors with a solution of perchloride of mercury, and afterwards reflooring with fresh mud, together with lime-washing of the walls and removal of portions of the roofs, that the disease was finally arrested amongst the fighting men.

That this bilious-typhus form is distinct from typhus, the presence of spirochæta in the blood of all the cases examined is conclusive evidence. The question of the possibility of a double infection of typhus and relapsing fever is excluded by the fact that no cases typical of typhus were seen as would have been the case had the epidemic been a mixed one. As regards bilious remittent fever, vomiting was not a feature of the disease, and in those cases in which it occurred it never did so oftener than once or twice. The malarial parasite was seen in the blood of only two cases of all those examined, and as has already been mentioned this vicinity is strikingly free from malaria.

The summary of these observations contributes towards the establishment of the views put forward by those observers, most of whom were unaware of the existence of a specific spirochæta, that relapsing fever is capable of assuming a form the clinical features as well as the gravity of which are distinct from those met with in its well-known stereotyped course, and the appearance of which in any outbreak has hitherto invariably been associated with a high mortality.

That form of epidemic jaundice described by Dr Weil which has many symptoms in common with the above, and in which Dr Frederick Taylor states relapses have been known to occur, may possibly also be connected with spirochæta infection.

The following is the pathological report of Captain Mackie, I.M.S., of the Patel Research Laboratory, to whom I am indebted for the care and trouble he took in microscopically examining some of my specimens.

Owing to the carelessness on the part of a subordinate in another Laboratory, a number of other valuable specimens were, I regret to say, lost.

PATHOLOGICAL REPORT.

Pieces of spleen, liver and lung, hardened in spirit, cut in paraffin, stained —Hæmatin,

hæmatoxylin, giesia, Romanowsky (Christopher's modification), ferriocyanide of potassium and hydrochloric acid (for iron), carbol-thionin and van Emeigen's stain

Spleen—The tissues as a whole were engorged with blood. The spleen pulp was filled with red blood corpuscles in various stages of disintegration, which in some large areas had gone on to the production of a granular debris, staining pink with eosin.

There was actual hæmorrhage in some places with obliteration of the pulp nuclei and early necrosis.

The capsule was distended from beneath with extravasated blood, some quite recent, and in other places it appeared as an old hæmorrhage and was associated with masses of deep yellow pigment lying free. In places there was small-celled infiltration of the pulp immediately under the capsule.

The stroma of the organ was for the most part normal, but here and there it had increased markedly in relation to the parenchyma and was stained yellowish-green with hæmatin and suffused with blue with the iron stain as though soaked in dissolved blood pigment.

The parenchyma was generally increased and mitotic changes were a marked feature. In certain areas there was great hypertrophy of all elements with central necrosis, and in the large areas complete disintegration of all structures. These areas had the appearance of toxic necrosis and bore no special relation to blood vessels. The blood vessels were generally distended with blood, partly broken up and the endothelium was proliferating, and in some places stripping off the tunica media.

There was no apparent change on the small bile vessels.

The blood vessels, the hæmorrhagic areas and particularly the necrotic areas, were minutely examined for spirilla by the above-named methods, but without finding either them or any other micro-organism. (The writer has succeeded in demonstrating spirilla in the tissues of monkeys with relapsing fever by some of the above methods, so that failure to find them in this case may be due either to the fact that the patient died when the spirilla had disappeared from the blood, or that they had disappeared as the result of early *post-mortem* changes in the tissues. The spirillum is very susceptible to *post-mortem* changes.)

Stained to shew free iron, there was some seen in small quantities scattered through the stroma, but the whole intercellular tissues took on a bluish tint as if soaked in an iron solution.

Liver—The general appearance was normal, but on a closer examination the vessels (portal) were engorged with blood, but the central hepatic vein was normal.

Endothelial changes were less marked than in the spleen. There were no wide-spread

interstitial hæmorrhages, but under the capsule almost in its full extent were old and recent hæmorrhages. The small interlobular vessels were blocked with blood, and here as in the larger vessels the red blood cells had disintegrated and appeared only as an amorphous debris.

The stroma was increased but swollen and the nuclei not sharp. There were no necrotic foci as in the spleen, but there were diffused areas where the nuclei were broken up and ill-stained. Golden yellow pigment occupied almost every group of cells. The liver cells were ill-defined, seemed running into one another, and their nuclei were slightly indefinite.

It is difficult to say if this was a toxic change, or whether it was due to early *post-mortem* influences.

Various parts of the section were carefully examined for spirilla without success.

There was marked excess of iron in the tissues, scattered throughout the section, but more marked at the periphery of the lobules.

Lung—The principal feature was the presence of wide-spread hæmorrhage. Many alveoli in masses were choked with recent hæmorrhages, especially near the margin were free from blood, the lung tissue was healthy and without any evidence of necrosis or softening. This suggests strongly that the alterations of this nature which were a feature in the spleen and liver sections were due to a true toxic process and were not of the nature of putrefactive changes.

There was some endothelial proliferation in the small vessels, and in these the red cells were bright and clear. Small collections of iron were seen in the supporting interalveolar stroma as well as the usual black sooty pigment.

No spirilla or other organism were to be found.

SURGICAL SHOCK—POST-OPERATIVE

By HENRY SMITH,

MAJOR, I.M.S.,

Civil Surgeon, Jullundur

THIS subject and its treatment deserve much more attention than writers on surgery usually give to it. It is in my experience chiefly associated with operations on the abdominal and pelvic organs—operations on gottie come in a separate category which I shall leave for a future occasion—between early childhood and late life. Operations on other parts of the body between early childhood and late life are very seldom associated with post-operative shock. In my experience the degree of post-operative shock depends on the amount of general anaesthetic used. If there is prospectively to be much loss of blood or if the patient be anæmic

or have diseased organs, the after-effects of prolonged anæsthesia are intensified. The same holds good in early childhood and in old age in either of which the patient stands prolonged anæsthesia or loss of blood or both combined very badly, no matter in what region the operative interference is, and the patient is, under either condition, very subject to post-operative shock. The more rapidly the operation is performed the less shock follows, and the more rapidly the necessary injuries we do to the tissues heal up and the less liability there is to sepsis. This is apparently from the fact that the constitution whose powers of resistance are not lowered by the very depressing after effects of prolonged anæsthetization, is capable of more prompt reparative action and is able to dispose of germs which would flourish in a constitution undermined by the depressing after-effects of prolonged anæsthesia. My opinion, based on an experience of general surgery, probably as liberal as that of most men, is, that the present day fashion of leisurely operating, and of regarding the after-effects of prolonged anæsthesia as of little importance, will, before long, show signs of reaction in favour of rapid operating. In short, that we shall be required to be as dexterous operators under general anæsthesia as were our predecessors of pre-chloroform days—to learn the art of operating as distinguished from leisurely dissecting under anæsthesia.

The symptoms of post-operative shock in its mildest or *first* degree are chiefly thirst and a rapid weak pulse. In its severer form or *second* degree, the patient complains of thirst, the pulse is very weak—may not be recognisable at the wrist, and he perspires freely, what is commonly called "cold sweat," the skin is cold and clammy, and the patient when asked how he is, generally says that he is well. The experienced surgeon at the same time sees that he is sinking fast. In its most severe form or *third* degree, these conditions are associated with restlessness and a sense of impending death. The symptoms of shock are apparent immediately after the patient comes from under the anæsthetic,—some of them even earlier—and their prompt treatment is of the utmost importance if we are to save life. The subcutaneous injection of digitaline and strychnine in any quantity in any of the forms is, in my experience, useless. These cases can bear an enormous amount of strychnia subcutaneously without the slightest reaction to it. I have found an intra-cellular infusion of a few pints of warm normal saline solution do splendidly in most cases of the *first* degree, but I have found it worse than useless in the *second* and *third* degrees. In the *second* and *third* degrees, I have seen no reaction from normal saline intra-cellular infusions except that in these cases it generally causes congestion of the lungs, so that, it is thus a thing to be careful in the use of in severe post-operative shock. In my

earlier days I was orthodox in the treatment of these conditions, but orthodoxy was not sufficient, to convince me that there was much in it in so far as the treatment of post-operative shock was concerned. It was not until I commenced the introduction of 20 m of tincture of opium hypodermically for this condition, and repeated it a few hours later, if necessary, that I felt any confidence in the treatment of post-operative shock, what drew my attention first to the use of opium in shock was, when I was in camp in the Bolan Pass in 1894, one morning I was called to an accident without any account more than that it was an accident. When I arrived I found that 18 men had been killed in a foundation by a bank slipping in and burying them, three men were extricated unhurt. They had all arrived from their village in the Punjab the day previous. The three men who were saved were stretched out on the bank, unable to speak, pulseless and the "cold sweat" running off them, all apparently from nerve shock. There was nothing in my haversack of any apparent use, such as stimulants, except some tincture of opium and a hypodermic syringe. I gave them each a hypodermic of 20 m of the tincture of opium and in five minutes they were sitting up and able to talk. Their pulse had returned at the wrist and their skin had resumed its natural warmth and dryness. They had recovered their sense of well-being. The effect of opium on those cases I never forgot, and when I saw the futility of the usual methods recommended for the treatment of post-operative shock, it struck me that opium might be of use. That post-operative shock is shock to the nervous system, there can be no doubt, and the more anæsthetic used, the more liable is it to occur. In the *first* degree a hypodermic of opium controls the symptoms including thirst. In the *second* degree it controls the thirst, strengthens the action of the heart, and circulation so that the pulse again becomes good at the wrist and the skin resumes its natural warmth and dryness and the patient recovers his sense of well-being. For the *third* degree opium is by far the best agent I know of, though the surgeon is better advised to anticipate it than to wait for its development. Surgical shock should be regarded as an emergency of the first order and requires to be treated accordingly, there being no moment to be wasted. In my experience strychnine or digitaline or normal saline infusion or all three together are worthless in the severer forms of post-operative shock. We get no reaction from them and hence they are worse than useless. The effects of opium when strychnia is previously administered is nil. The one drug counteracting the effects of the other.

With due respect, I suggest a trial of opium hypodermically in post-operative shock, and in the shock incident to wounds, however trifling, in warfare and in pure mental shock of a severe nature.

NOTE ON THE "ANCHYLOSTOMES" OF BURMA AND ASSAM

BY J W W STEPHENS

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IN examining recently some human anchylostomes sent me from Burma by Major Wood, I.M.S., I was surprised to find that the buccal capsules were devoid of teeth. A closer examination then shewed me that the worms were not true anchylostomes, *i.e.*, did not belong to the genus *Anchylostomum*, but corresponded closely in their characters to those of the American "Anchylostome", *viz.*, *Necator americanus* (Stiles). I next examined some anchylostomes among some old Kala-azar material preserved by Major Ross many years ago in Assam. All these again except one were species of *Necator*, while one was a true *Anchylostomum duodenale*. Dr Loos of Cairo who happened to visit Liverpool shortly afterwards kindly confirmed my diagnosis and further pointed out to me that among the specimens were at least three different species of *Necator*. *Necator*, besides existing in America, has also been found by Loos in the pigmies of Central Africa. It is evident then that *Necator* has a wide distribution and no doubt exists in India as well as in Assam and Burma. Whether these species of *Necator* include *N. americanus* remains to be seen. Careful examination of properly preserved material will be necessary to determine this point. I may point out here some of the more striking differences between the two genera.

<i>Anchylostomum</i>	<i>Necator</i>
1 Anterior extremity of worm but little bent	1 Anterior extremity distinctly bent like the end of a hockey stick. This difference is visible with the naked eye or pocket lens
2 Ventral margin of buccal capsule has large teeth easily seen	2 Ventral margin has no teeth but has cutting plates
3 Oesophagus almost cylindrical	3 Oesophagus distinctly bottle shaped (<i>i.e.</i> , has a neck and bulb)
4 Spicules of the male end in a very fine point	4 Spicules have a barb at the end
5 Dorsal ray of the bursa divides about two-thirds of distance from its base, each division tridigitate	5 Dorsal ray divided to its base. Each division widely divergent and each division bipartite

For the successful identification of anchylostomes and indeed of other similar worms, it is of great importance that the buccal capsule and bursa should be clean. In order to clean the worms, they should be collected as soon as possible after death, put into normal salt solution in a test tube and thoroughly shaken up with one or two lots

of solution and then an equal bulk of saturated sublimate solution added, in this, they may be left or transferred to about 70 per cent alcohol. May I venture to add that I should be very pleased to receive anchylostomes from anybody interested in this question.

AN ACCOUNT OF PLAGUE IN BENGAL*

BY W W CLEMESHA M.D., D.P.H.,

CAPTAIN I.M.S.,

Officiating Sanitary Commissioner, Bengal

(Continued from page 356)

The absolute certainty with which cases of plague follow the finding of dead rats in houses is a matter of common experience. Even in the perfect sanitary surroundings of our Indian jails this fact finds confirmation. Thus, dead rats were found in a ward in Arianah Jail on 14th February 1903, and on 16th February 1903 five cases of plague occurred among the prisoners. Instances such as these have led some officers to believe that the passage of the disease through the body of a rat renders the microbe more virulent.

We now come to the third division. *The spread of the disease into the surrounding villages within a comparatively short distance.*

In watching the spread of plague from village to village through any of our rural districts in India there are many facts that come to one's knowledge which provide considerable food for reflection, and many problems the explanation of which is largely a matter of theory at present. It is to bring in these points that I have decided to take the methods of spread of plague from village to village under a separate head.

To begin with, what has already been said about the conveyance of plague from house to house, by means of human intercourse, applies more or less to the spread from village to village. Inhabitants of one village frequently have relatives and friends in a neighbouring one, whom they visit. Also, if cases of plague occur at one place the people, becoming frightened, may go to their caste-brothers in the next, carrying the disease with them.

Further, as we have already pointed out, clothes from the dead man may be carried about by low-caste people, and hidden in their own little hamlets, but these kinds of cases are not often met with. The majority are directly traceable to the infection being brought by a particular person who came from a plague-infected house, and was taken sick in a new village.

There is, however, another series of cases, in which no possible explanation as to who or

* Being an abstract of a report to Government, September 1905. Not for Prize Competition.—Ed., J. M. G.

what brought the bacilli can be found. Thus, it is sometimes noticed that when plague is spreading about a district, without a single case of death or suspicious sickness in the village, rats begin to die.

How can this be explained? Obviously, the answer is that the infection must have been brought either in the clothes of a man who did not contract the disease himself, in some article of food or goods brought from an infected area, or, that some plague-infected rats brought the disease. Let us examine the last possibility first. Villagers living in Bihar have on a few occasions told me that they have seen rats migrating out of villages in a body when they are attacked with plague. On further investigation the evidence has always proved to be untrustworthy. That rats do leave a plague-stricken village is more or less certain, because they all disappear. Some die doubtless, some run away, but that the whole lot leave in a body, as the natives consider they do, is doubtful. Further, I do not believe that they move far away from their old home. At any rate, I have never seen or heard of anybody who has seen dead rats far from a village. I have seen them in plenty on threshing-floors and in the immediate vicinity of the village.

The field rats have been known to move about in sufficient numbers to cause a famine in the parts they have visited, so under certain circumstances the house rat may take on nomadic habits. However, this is a point that wants further elucidation, as far as our present knowledge goes we can only say, whilst it is possible the rats may carry the disease a considerable distance away, there is no satisfactory evidence that they do so.

If rats did not bring the infection it may have been carried in the clothes of people going to and from plague-infected and non-infected places, without contracting the disease themselves. From what we have already seen of plague the clothes theory seems extremely improbable. Hence, we are driven to the conclusion that it must be in merchandise that sufficient infection is brought to infect rats of an otherwise non-infected village.

The merchandise most likely to carry plague, and the only one which we shall take any account of, is grain, and grain bags.

Another point that has frequently been observed by plague officers is—Why is it always the village shopkeeper who first gets plague? There are more rats about his house and storehouses than in other habitations, undoubtedly, but how did these animals contract the disease? Probably from some infected grain or grain bags brought from an infected warehouse.

We may, therefore, conclude that whilst it is very difficult to say positively, on any occasion, that no other means existed whereby the plague virus could have been conveyed from an

infected locality to an uninfected one, except in contaminated grain or grain bags, there is a certain amount of evidence which tends to show that the plague bacillus has been conveyed by this means for a short distance, and there is nothing theoretically impossible in the supposition.

It may be enquired if plague is carried from village to village by grain why not further distances? The answer appears to be that as soon as any infected material is fairly well exposed to the Indian sun and hot air disinfection is very rapid.

Looking back over the subject of the spread of plague, as a whole, a few points stand out as certain, amongst a great deal of surmise.

(i) That in India the disease is carried about mostly by persons who are in the incubation period, and by the sick being conveyed surreptitiously.

(ii) That the rats and other animals exercise a very powerful influence by carrying the active poison in all directions in a circumscribed area. These animals may disseminate the virus so widely, and may contaminate so many things by their presence, that if it were not for the ease with which natural disinfection is performed in India by the sun and heat, these articles would in their turn be instrumental in spreading the malady.

If these natural disinfecting influences are done away with, articles will retain their living micro-organisms a shorter or longer time, and so be a source of danger in consequence.

I am more and more coming round to the belief that during the quiescent stage of plague, that is to say the non-epidemic stage, the disease is kept alive by a sort of endemic disease amongst the rat population. In nearly all places where plague has once manifested itself occasionally dead rats are found when there is no plague amongst men.

There still remains, however, to be discovered what is the factor that converts this mild type of the disease amongst rats into the virulent epidemic that infects mankind.

It will be seen that Captain A. F. Stevens considers that the reason certain houses in Allahabad are always the first infected is because they are on regular rat-runs. It is not, however, very well demonstrated at present that this is actually the case.

It is most devoutly to be hoped that this explanation of the quiescent stage is correct, for if it is, there is some hope that in any place where thorough rat extermination can be carried out, plague may be stamped out and the period of activity averted entirely.

The measures adopted to combat the spread of plague in India, and the efficacy of each—In dealing with plague in epidemic form there is one point that many of the most skilful medical men, and practically all civilian administrators, overlook, viz., that an epidemic of plague is not

the same thing as a plague culture prepared in a test-tube. There is no more connection between the two things than there is between a charged Leyden jar and a thunderstorm. Until our knowledge of the life-history of the plague bacillus is so advanced that we can prevent the plague storm from gathering, all preventive measures can at best be likened to the action of a defective lightning conductor, which confers a very small amount of protection on a very limited area. Therefore, the line of action to take in all plague measures should be—the removal of all conditions favouring the growth and activity of the bacilli, and endeavouring to render the people as insusceptible to the attacks as possible, not to attempt, metaphorically speaking, to put salt on the tail of the bacillus when it is in its most active phase.

The particular measures that will be dealt with here are—

- (i) Removal of the sick to the hospitals
- (ii) Evacuation of infected houses and areas
- (iii) Segregation of contacts
- (iv) Disinfection
- (v) Inoculation
- (vi) Sanitation

Such means as the proper registration of deaths, corpse inspection, search parties, inspection of passengers travelling by rail, etc., will not be discussed, as they are matters that affect India alone.

(i) *Removal of the sick to Hospital*—At the outset, in discussing this point it should be understood that this is a measure which cannot be universally carried out in India. To explain the reason why would take too much space here, but with India as it is, it cannot be done. From a purely sanitary point of view, it undoubtedly should be carried out.

Further, the returns of all our hospitals in this country show that the percentage of recoveries from amongst those who are treated scientifically is vastly greater than from those who are left to the mercy of their relatives, friends and the village doctor, so, for the patient's sake, it is a good thing. It is rather discouraging, however, to find how few people in some parts of India do go to hospital when affected with plague.

(ii) *Evacuation of infected houses and areas*—This, as a method of combating the spread of the disease, and as a means of saving hundreds of lives, has no equal in the whole list of preventive arrangements. This is a strong statement, but it is based upon long experience and on practically unassailable proof.

From what we have seen in the foregoing paragraphs, about the house being the connecting link by which the infection can be passed from man to man, or from animal to man, one would naturally expect that, removal from the plague-stricken house would be beneficial for the members of the household who were still in good

health. That it was the evacuation that actually saved the people has been recognized for some time, but definite proof is always difficult to obtain. For instance, if a whole village moved out and nobody suffered from the disease, there could be no absolute certainty that they would have contracted the disease if they had remained in their houses.

A case occurred in my district during the last bad epidemic in Patna district, which can fairly be said to settle the question. Near Sadisopur, in Patna district, are two small hamlets, separated only by a small field about 30 yards broad. The name of the smaller is Tewari Chuk, and is inhabited by Tewaris, a family of Brahmins who have intermarried and are related to each other. The population of this village is 70 strong. The larger village is named Dechit Chuk. It is inhabited by all castes of Hindus, the population being about 250 souls. Rats were noticed to be dying in both villages just about the same time. As far as I can gather, no person is known to have brought the infection. The villagers who lived in Dechit Chuk all vacated except—

One family of Kayasths (writers), consisting of four or five members

One family of Kumhars (tile-makers), consisting of four or five members

One family of Julahas, consisting of man and wife

One family of Brahmins, consisting of some seven to eight members

In Tewari Chuk the high caste would not leave their houses. Plague in very virulent form made its appearance amongst them.

Amongst the Brahmins of Tewari Chuk 40 out of 70 died of plague in an incredibly short time.

Among the Dechit Chuk people, who vacated not a single case occurred.

Amongst those who remained behind the Kayasth family lost one member, then vacated and the rest kept free.

The Kumhars all died, some four or five souls. The Julaha and his wife died.

In the Brahmin family three persons were taken ill and removed into the fields, they all died there, but the remainder, who were well when they vacated the house, did not take the disease. Here we have absolute proof that it was the agency of evacuation which saved the people. Firstly, we have two villages under precisely similar conditions, one lot leave their houses and the other lot remain. Those who move out keep entirely free, whilst those who stay in their houses lose over 50 per cent. Secondly, to act as control experiment, so to speak, some four families remain behind in the village when most evacuate. These also get plague, more or less, thereby proving that the disease was actually present in both villages. Another almost identical case occurred in

Shahabad district, where half the people vacated half remained, with much the same result.

It is well known amongst all the Gharwalies who live in the hill country of Kumaon, where the disease has been endemic for years, that leaving the houses when the disease is present is beneficial, and saves the inhabitants. They know the disease under the name of Mahamari.

The inhabitants of Bihar have been educated to know that to leave the village when the rats are dying is the only way to stop the malady, they usually move on to their own piece of land at once, so they frequently escape without a death. They usually remain out till all the crops are cut and threshing is over—that is, till the end of April or into May. If they remain out till then, it is quite exceptional to get cases when they return.

There can be no possible doubt that early evacuation is the only measure applicable to our Indian rural areas, and that it is in a large measure successful. It is when we come to deal with a town of over 10,000 that the impracticability of this, as a universal remedy, is seen.

The vacating of houses in a village does not in any way prevent the disease from reappearing a second time in twelve or eighteen months after the period of quiescence is over.

(vi) *Segregation of contacts*—Segregation of contacts in India has been tried in two ways. Segregating people of the better class in their own houses, and removing people whose houses were unsuitable to a health camp. The former of these methods is not a satisfactory measure, especially if it is the same house in which the patient was taken ill. In spite of the fact that the house seems fairly sanitary, other cases amongst the occupants frequently occur.

Removal to health camps means evacuation, and, as we have seen, evacuation is the best measure we know of up to date. The returns of the various segregation camps in Poona, where people were kept under observation for ten days and were not allowed outside the precincts of the camp, show that a very small percentage—12 per cent—of the occupants ever developed the disease. At Barh it was under one per cent. In towns where the cases are being concealed, this percentage increases and may be as much as five per cent, but in places where people come to camp early and report all as soon as they sicken, or leave their houses when rats die, none, or very few, develop the disease. Consequently, in villages where early evacuation of the house is ensured, there is no necessity to keep the contacts under observation at all. They can go about their daily avocations without any fear of passing the infection on. The strict segregation of contacts is much more justifiable, when the case has been imported from a distance, and the rest of the town is free also if it is known that the case was of the pneumonic variety.

Hence we may conclude that if early evacuation of infected houses is ensured, segregation of contacts becomes unnecessary.

(v) *Disinfection*—By disinfection in India we mean swilling a house with a chemical solution, usually the acid solution of perchloride of mercury, and in some cases whitewashing the following day with a solution made of quicklime and water, put on hot. As to the efficacy of this measure as a method of stopping the disease, there is great difference of opinion among plague experts. Let us first discuss the case as it applies to India.

The house we have already described. Firstly, is it likely that swilling a mud-walled, mud-floored edifice with perchloride of mercury solution will kill all, or anything like all, of the plague germs that may be in it?

Consider the scrupulous care bestowed on the disinfection of instruments and the hands by the Surgeon, before operating, and yet cases occasionally become septic. I think it distinctly unlikely that chemical disinfection will ever give satisfactory results in mud-floored and mud-walled dwellings. Secondly, does practical experience prove, or tend to show, that disinfection has (a) stamped out or (b) cut short epidemics of plague?

(a) One thing is perfectly certain, and that is, it does not stamp out the disease. For in India no amount of the most careful disinfection, during an epidemic, has had the slightest effect in stopping a recrudescence of plague in any given town, after the natural latent or quiescent period has elapsed.

In Patna district many whole villages have been evacuated and disinfected with the same result. In the Punjab exactly the same is noticed. Disinfection as the means of preventing recrudescence is useless.

(b) Is disinfection of houses any use in cutting short the active phase of the disease? It is very doubtful if it has any effect at all. All the disinfection of houses that has come within my experience has been accompanied by evacuation. Hence it is obviously impossible to come to any conclusion on the efficacy of disinfection alone.

I have seen instances, frequently, where people who evacuated their houses have been seized with plague on return, after careful disinfection of the dwelling.

Disinfection without evacuation has been carried out in Calcutta, but opinions as to its value differ considerably. If it is established as a valuable agency in combating plague in that city, it should be pointed out that a fair number of native houses in Calcutta are two or three-storeyed, and have wooden floors, so they would naturally be more likely to benefit by chemical disinfection than the village houses.

Chemical disinfection is costly, it requires a large staff, and can only be properly done under the immediate supervision of a European medical officer. This alone makes it an

impossible measure in many rural districts of India

Thus we may reply, as already stated, chemical disinfection cannot be relied on to stamp out the disease, there is no direct evidence that, in the usual mud-walled and earth-floored dwellings, it is by itself of any value in cutting short the disease, but it may be of some value when combined with evacuation

Further, as the process is costly and difficult to carry out, equally good results would probably be obtained by covering the floor with any slow burning combustible material, such as cowdung cakes, and lighting a slow fire over the floor of the infected dwelling

(v) *Inoculation*—On this point I can say very little, never having done any. In the parts of the country where it has been my lot to serve, the people would not have it. There can, however, be no doubt as to its efficacy. The most carefully collected figures leave absolutely no room for doubt. As the natives of Bengal and Bihar are not anxious to avail themselves of the preventive measure at present, it will be a matter of education of the people. In towns where evacuation is impossible, it should be given every opportunity

(vi) *Sanitation*—Theoretically speaking, sanitation is our best hope of combating the disease. Our great Indian cities are the places where the disease works such havoc. The villagers will in time learn to help themselves, principally by evacuating their houses. In the cities, certainly, a great deal might be done in the direction of prevention of overcrowding, and condemning houses unsuitable for human habitation

I am sure, however, that plague requires a much higher standard of sanitation, to keep it within bounds, than is at present possible in India. The mud-walled house with its earthen floor, which, as we have seen, is the great factor in the life of the disease, is the only possible structure that nine-tenths of the Indian population can afford, and it is not without its advantages, being decidedly cool in the hot weather for one thing. I am not talking of the hovel, but of the better built mud houses, or sun-dried brick structures met with in the Punjab, United Provinces and Bihar. These houses are frequently cooler than the brickwork bungalow the European has to live in. They might be better ventilated, there is no doubt, but it will be many centuries before the East will understand ventilation

Those who have had any experience of the difficulties met with, on introducing sanitary reforms in India, know that it is only with the utmost tact and persuasion any changes for the better can be introduced in such matters of public interest as water-supply and conservancy, but when we come to sanitation for the private dwelling-house, which is each man's own domain, it is well nigh hopeless. Therefore

we may take it that the standard of sanitary perfection, which would be necessary to materially alter the conditions of life of the plague germ, would require such great changes in the dwellings of the ordinary Indian subject as to place this method of combating plague beyond the range of practical policy in India generally

In our large cities many sanitary changes are possible, especially in the direction of preventing the frightful overcrowding in tenement-houses and in bazaars. Great improvements could be brought about by an enlightened Municipality

To summarize our policy in India, we may say that, in the light of our present knowledge, to evacuate in villages, inoculate and sanitize in towns, and allow the people to disinfect their own houses by fire are the lines on which measures should be directed, but above all slay rats. Now let us see how far this is applicable in England

The belief that the fleas of the dead rats actually carry the infection to man is gaining ground in this Province. I myself have no personal observation which can be said either to disprove or support the theory, but there are some obvious weak points in the theory. Thus pure pneumonic plague is not by any means a rare occurrence in houses infected by rats. Obviously, in this case the flea is not the channel of infection. There seems to be some evidence that the virus of plague is increased in virulence by passage through rats. If this is the case, it appears to me that the flea is an unnecessary link in the chain. Given a really virulent virus (as we undoubtedly have from rats, as is shown by the fact that the violent types of plague are so common when rats die in great quantities) in fair quantities spread about a dark, damp house in which everybody goes barefooted, infection of the occupants would be frequent without fleas. Again, the very infectious nature of pneumonic plague in man is an established fact. The disease that rats die of is probably an intestinal or a pneumonic variety. All precautions are taken to destroy the fleas with the rats in places where rat-extermination is being tried

Rat-killing is being attempted in Bengal in several places, but at present we have not had time to see the result. Rat-traps are chiefly relied on, and by offering rewards we are gradually forming a class of rat catchers who use their own methods. Poison is only used sparingly, because it is somewhat dangerous and it has the disadvantage of frightening the rats away from the place. The time to catch rats in this country (Bengal) is the height of the rains. There can be no doubt that rats are driven into villages from the fields by the floods, and if a really active crusade was undertaken at this period, there is more hope of ridding the village and the surrounding fields than at any other

As to what the result of destruction of rats will be nobody can yet say, but I feel convinced

that some natural economic condition will be upset, though the result may not be anything like so serious as an epidemic of plague

There is only one time when strong measures to put down plague, such as forcible evacuation of a house, segregation of the inmates and removal to hospital of the patient, are justifiable, and that is on the arrival of a patient from an infected place to a non-infected area. The object of such measures should be to prevent the rats of the newly infected place from contracting the disease. If once an epidemic has started amongst the rats it is hopeless to try and stamp out the disease by worrying the people with strong measure but it is better to turn one's attention to the rats and catch as many as possible

A Mirror of Hospital Practice.

NOTE ON INTRA-CAPSULAR CATARACT EXTRACTION

By E A R NEWMAN,

MAJOR, I M S

THE pros and cons of this operation have been so ably discussed by such eminent operators that it would be mere presumption to express an opinion on its advisability or otherwise on the part of one of "the comparatively inexperienced," for few Civil Surgeons can, I fancy, even compete with Major Birdwood's average of 400 extractions annually, and the object of this note is to bring before others of the same category a practical observation which may be found useful

Some three years ago after reading a paper by Major H Smith, I made my first attempts at this method. Of the first ten cases I failed to extract the lens in the capsule in at least four instances, *without using greater force than seemed justifiable*. Extraction was then completed after capsulotomy in the ordinary way

I was, however, agreeably surprised to find how much more easily and cleanly the soft lens matter round the hard nucleus came away, than was ordinarily the case. Subsequent experience has confirmed this observation, particularly if the lens during delivery is well followed up by the spoon. In almost all cases I now make an attempt at extraction in the capsule, feeling confident that if it fails the manoeuvre so far from doing any harm will actually facilitate the subsequent steps. Generally speaking any soft matter that may be left is lying close to the wound, and is easily washed away by gentle intermittent pressure with a curette on the upper lip of the incision, while the conjunctival sac is freely douched with a Jessop's irrigator by an assistant. The speculum is, of course, fully elevated, and the conjunctival sac forms

a regular bath for the lotion. The only explanation seems to be that the pressure exerted on the lens alters its shape and so detaches the soft matter from the capsule, just as a sharp tap or shake will detach a jelly from the sides of a mould

The main cause of failure to extract a lens in its capsule by the comparatively inexperienced, is, I think, too small an incision. The lens, capsule and all, is often a pretty bulky object, and a modified linear incision is therefore preferable to a large flap, while the possibility of resulting astigmatism is not a matter of much importance to an illiterate patient. For making counterpressure there is nothing like Taylor's vectis, again for the comparatively inexperienced. If there is a hitch it can at once be slipped in behind the halting lens and extraction completed. In 20 cases it may not be needed, but it may save the 21st eye

The scientific objections to the operation have been exhaustively dealt with by Major Herbert and Major Elliot, yet the argument *ad hominem* is strong. An operation which is so strikingly and immediately successful appeals with much force to the uneducated patient, who resents with suspicion any secondary operation as evidence of bungling, and frequently leaves hospital without recovery of sight in preference to submitting to it. Apart from its simplicity it consequently appeals equally to the ordinary Civil Surgeon, who is largely dependent on his personal reputation as distinct from that of the hospital for a steady attendance of such cases. This, however, is not the case in special hospitals

A word on aseptic technique. I cannot agree with Major Elliot's "*Asepsis not motto, Antisepsis*," as it perpetuates an obsolete idea, yet his practical conclusion, that thorough mechanical cleansing is as efficient with boric lotion as with the more irritating sublimate, is valuable. The efficiency of the latter does not, I take it, depend on its germicidal powers, which must be insignificant in such weak solution and applied for so short a time, but on its physical effect in causing the exudation of infective mucus, and if the use of boric lotion is equally efficient in producing this effect it is certainly preferable as the congestion it sets up is of a very temporary character

Boiling the knife in plain water for one minute, though probably sufficient, conceivably may not be so, and I therefore as an additional precaution place it in 70 p c rectified spirit, which is a powerfully germicidal solution and does not damage the edge, while the other instruments are being boiled. (The strength is important, rectified spirit is useless.) As the spirit lotion is kept in a separate tray, this plan has also the indirect advantage that the knife is not liable to be damaged by accidental contact with other instruments. Further boiling in a 1 p c solution of carbonate of soda instead of

plain water, is still more certain and quicker, for the re-sterilization of instruments 1 minute should be ample

PNEUMOCOCCIC INFECTION OF JOINTS

By KARUNA K OHATTERJI,

Resident Surgeon, Howrah General Hospital

ARTHRITIS is a rare complication of pneumonia. I have got on record three cases in which there was suppurative synovitis of the knee in two and of the shoulder-joint in the third after pneumonia. The fact of pneumococci being found in the pus from these joints adds interest to these cases.

Pneumonia is a general systemic infection which manifests itself markedly through the lungs. But there may be other manifestations of the disease. Such, for instance, are shown by these cases in which the pneumococci that had got entrant in the circulation settled themselves in a particular joint which went through a course of inflammation, suppuration and partial disintegration.

I have had the opportunity of observing these cases in the Medical College Hospital while I was there in charge of Dr Charles' wards as his House Surgeon, and I am duly thankful to him and to Dr Lukis for their kindly permitting me to publish them.

Case I—Saba, a Hindu male, aged 28 years, was admitted into Dr Harris' wards on 10th February 1904 for double pneumonia. There was a history of exposure to cold on 4th February 1904. On admission, symptoms of pneumonia were present on examination. These were slowly abating, and on the 20th the report in the ticket says—"Crepitation and tubular breathing less, expectoration easier. Right knee shows signs of synovitis." From the 20th to 26th he remained much the same, temperature ranging between 99° and 101° F.

26th February—"Tubular breathing disappeared, a few crepitus present. Transferred to Dr Charles' ward for synovitis, right knee. The knee was sterilized."

27th February—"Knee aspirated from the inner side. Purulent-synovial fluid escaped. Another plunge of the needle about three inches above the patella brought only blood. Dressed and put up on splint. From the 27th February to 3rd March, pain in the knee grew less. Temperature between 99° and 100° F. On the evening of the 3rd the swelling increased, and the knee was strapped with Scott's dressing."

5th—"Temperature 99° to 100° F. Pain in the knee less, but there is pain in the thigh. Lungs almost cleared up. There is slight bronchitis and cough."

7th—"Temperature 101° F, pain above the knee has increased. Lint Iod and Lint opii applied and hot perchloride compress every four hours."

8th—"Symptoms unabated. Knee sterilized and aspirated anteriorly. Pneumococci found in the pus drawn."

9th—"Temperature 101° F. Free incisions into the joint both internally and externally, and free drainage allowed." Temperature soon came down to 99° F, and the patient progressed steadily, he was discharged cured on the 24th with a partially stiff joint.

Case II—Sher Khan, an Afghan Mahomedan male, 40 years, was admitted into Dr Harris' ward on 20th November 1904 for pneumonia and synovitis. About ten days previous to admission on exposure to cold at night the right side of the chest became painful at its lower part. The pain increased on the following day, causing difficulty in breathing. A few days later the right knee-joint became swollen and painful.

On examination the signs and symptoms of pneumonia of the base of the right lung were present. Breathing 32 per minute. One or two râles on the left side could be heard. There was viscid expectoration tinged with blood. There was synovitis of the right knee, which was swollen, hot and painful.

The signs and symptoms of pneumonia subsided by about the end of the month. The synovitis, with a persistent evening rise of temperature, continued. On 13th December transferred to Dr Charles' ward.

14th December—"Right knee-joint was punctured and 10 cc of turbid fluid drawn, from which a culture of pneumococci was grown"—(Sd) D McCay (Resident Physician).

The pain subsided a little. Eventually, there was fluctuation which extended to the popliteal space. The patient, however, refused to stay in the hospital, and after some ineffectual persuasion to keep him, he was discharged.

Case III—W E Douglas, European male, 57 years, a Mechanical Engineer, was admitted into Dr Lukis' ward on 9th February 1905 with indefinite symptoms of pneumonia. Later on he developed synovitis of the left shoulder-joint, and the temperature began to rise up to 100° F in the evenings. The Registrar noted the leucocyte count as follows—

On 2nd April 1906	125,000
5th " 1906	220,000
7th " 1906	250,000

8th April—Transferred to Dr Charles' ward. The left shoulder-joint was cleared and sterilized. On puncture, pus was detected, which, on examination, showed pneumococci.

9th April—Left shoulder-joint again sterilized. The joint was opened from the front cutting through the capsule. The neck of the humerus was found necrosed. Another posterior incision was made, and the joint flushed out and drained. Extension with pulley was then applied. The patient made a good recovery, and was discharged with an ankylosed shoulder on the 18th May 1905.

A CASE OF OSTEOMALACIA.

By W. H. CAZELY, B.A., M.B., B.S. (Lond.),

CAPTAIN.

THE following case of what is known as a rare form of pelvic deformity obstructing labour may be of interest.

The patient—a Maratha (Hindu) woman—was admitted to the civil Hospital, Satara, on August 7th, 1906, at 3-30 P.M., suffering from obstructed labour. I was at once sent for by the Hospital Assistant.

I found the patient in labour which had begun at 4 A.M. so that she had been in labour for twelve hours, a very long time for a native woman, especially a multipara. A good many "dhais" or native midwives had already attempted to deliver her before admission.

She gave a history of six previous labours, the first four quite natural, the fifth difficult and the sixth very difficult. She said she had been suffering from "rheumatism" for the last two or three years.

The patient was very deformed. The lower extremities were in a condition of extreme flexion, the thighs flexed on the abdomen and the legs on the thighs. The limbs were fixed thus and the bones appeared to be quite hard. Externally over the sacrum was a well-marked depression.

The vulva was extremely swollen and cedematous.

On vaginal examination the os was found to be fully dilated and drawn up over the head which was presenting. The head could not enter the brim of the pelvis and was freely moveable above it. There was an enormous caput succedaneum.

The pelvis was a triadate malacostean pelvis. The pubes was pushed forward and beak-shaped and the pubic arch so narrow that it would only admit one finger. The promontory of the sacrum was easily felt and also the tubera ischii. The pelvis would not allow the hand to be passed through it. The bones were not in the least pliable but quite hard and fixed.

Cæsarian section was refused. Craniotomy was performed, and a small child with some difficulty delivered.

The general condition of the patient was such that I thought it best to postpone making exact measurements till the next morning, but the woman was removed from the hospital by her friends in the night.

DISTOMUM CRASSUM

By Asst Surgn H. LYNDOH, L.M.S.,

Dhubri.

THE following is a case of *distomum crassum* (*V. opisthorchis* Busk.) which came under my care some little time ago, and a short account of which, illustrating some points in clinical

symptoms, treatment, and the helminthology of this rather uncommon form of worm, may interest my readers—

A man named Manu, an Assamese, Hindu, aged 28 years, came to hospital complaining of fever and acute diarrhoea. He was a fairly well built youth but had manifestly been very ill of late. He wore an anxious expression of face, had a hot, dry skin, a coated tongue, a slightly enlarged spleen and a temperature of 102°F. He was admitted to hospital at once. On the following morning, finding the patient had passed copious watery stools, well coloured with bile, I administered an ounce of castor oil with 15 minims of the tincture of opium, which had the desired effect of checking the diarrhoea. The morning and evening temperatures on that day were 99°F and 100°F. respectively, and thirst was a prominent symptom. The diet was restricted to milk and farinaceous food.

On the following morning, the loose yellow motions appeared again and the temperature rose to 103.4°F. On examining one of the stools, I noticed a reddish lump floating in it that gave me the impression of being a clot of blood. On closer inspection, I was able to recognise it as a parasite belonging to the *Trematoda* genus of entozoa. Seeing this, I gave the patient 30 grains of thymol followed by two other doses of 10 grains each, at intervals of an hour. Shortly after the last dose of the anthelmintic, the patient passed two specimens of the same kind of worms. Later in the day he complained of intense headache and thirst, as well as a feeling of weakness. I followed up the thymol treatment by administering a dose of castor oil on the following morning, as the result of which several watery stools were passed and I was able to collect 30 more parasites. The temperature on that day varied from 103° to 104°F. Next day 8 more worms were passed in three stools, while the temperature continued at 103°, and the patient felt the same symptoms of headache, thirst, and weakness. On the fourth day, 7 more distomes and 3 round worms (*ascaris lumbricoides*) made their appearance, the temperature being less high, 101° to 102.4°F.

From that day the patient began to get better, the temperature gradually returned to normal, as did also the stools. The appetite improved, the feeling of distressing thirst vanished and the patient, though still weak and thin, began to 'pick up' remarkably well. The diarrhoea he originally suffered from, had a tendency to give place to constipation, necessitating the use of a mild aperient later in the course of the treatment.

Exactly a month after the date of his admission the man was discharged from hospital quite fit and able to return to his duties and with no abnormal symptoms.

In all 48 specimens of the worm were collected which on further examination were

recognised as *distomum crassum*. The first parasite was expelled alive and was of a reddish colour and a fleshy consistency. The others were discharged dead as the result of the action of the thymol. In shape each was an elongated oval, narrower anteriorly than posteriorly. The suckers, two in number, were placed close together, the anterior one at or very near the narrow end and so small as to be barely visible to the eye without the aid of a magnifier, especially after preservation in a 5 per cent solution of formalin. The posterior sucker was the larger one and was separated from the other by about an eighth of an inch. The part just behind the posterior sucker, when the worm was first expelled, was quite blood-red, apparently due to the stomach being engorged with recently sucked blood, shining through the more superficial structures. With regards to the sex of these worms, I may quote the opinion of Major Alcock, I.M.S., who says that "with one or two exceptions (the most notable of which is *bilharzia hæmatobium*) the endoparasitic trematodes are hermaphroditic, the male organs may ripen before the female organs, but both male and female organs occur in one and the same individual."

I sent some specimens of the worm to the Indian Museum, Calcutta, and have several still with me.

The flukes probably came from the upper part of the small intestine, but unfortunately nothing is known regarding its life-history.

The case seems to me of interest as illustrating (1) the remarkable symptoms of diarrhoea and intestinal irritation, *e.g.*, high fever, and the resulting emaciation, etc., which I have described and which were undoubtedly set up by the presence of the worm, and (2) the extraordinary effect of thymol, followed by castor oil, in causing the parasites to be expelled and the patient's life saved.

POISONING BY MYROBALANS

By F N WINDSOOR M.B.,

CAPTAIN, I.M.S.,

Chemical Examiner and Bacteriologist to the Government of Burma

POISONING by the kernels of the nuts of *Terminalia belerica* or *belleric myrobalan* is sufficiently rare to render the following account interesting.

A native of India brought to his home some kernels which he said would be good to eat if cooked. Accordingly a pilau was prepared and the man, his wife and four children partook thereof. In about an hour's time they were all seized with nausea, vomiting and giddiness. After forty-eight hours' illness the man, his wife and two elder children recovered, but still felt dazed and giddy. The two younger children, aged respectively $3\frac{1}{2}$ and 2 years, died within

the forty-eight hours, being unconscious throughout the illness. The common narcotico-irritant poisons were searched for, but not detected in vomited matters or viscera with their contents.

The kernels were identified as myrobalans. In Lyon's Medical Jurisprudence it is stated that two instances are on record of such poisoning. In one, three boys, after an illness, recovered, while in the second a woman and two children partook of the kernels, the woman recovering but the children dying. The symptoms were nausea, vomiting and narcotism.

In the Dictionary of the Economic Products of India, a full account is given of the tree and its fruit. The vernacular names are—Hind, *baherá*, Tamil, *tándra láya*, Burmese, *tissern*. The rind of the fruit is in common use as a tan and mordant. The kernels are used medicinally in native practice and are said to be narcotic and astringent, formerly, they were in use in European practice from the time of the Greek physicians. Goats, sheep, cattle, deer and monkeys are said to eat the fresh fruit. Natives also eat it, but say that intoxication results if a quantity be taken, especially if water be drunk afterwards.

Dymock, Warden and Hooper experimented and believed that, if taken in moderation, the kernels are harmless. These observers used alcoholic extracts, but it is possible that cooking with water may increase the toxic properties or that alcohol may not dissolve the poison. It is said that these kernels or the oil expressed from them are sometimes added to bazaar spirits to increase their potency, but since no chemical or physiological test is known, this statement must be hard to prove. It is possible that in some cases of unexplained death where no poison save alcohol is detected, the toxic agent may have been myrobalans.

SERVICE NOTES

LIEUTENANT COLONEL A. W. ALCOCK, I.M.S., F.R.S., LL.D., Superintendent of the Indian Museum, Calcutta, was granted one year, 2 months and 23 days' combined leave, with effect from 5th June 1906, and Dr N. Annandale, the Deputy Superintendent, acts for him as Superintendent in addition to his other duties.

His Excellency the Governor in Council is pleased to appoint Mr. Jalejai Rastamji Vakil, I.M. & S., to act as Honorary Physician, Jamshedji Jyubhai Hospital, during the absence on leave of Dr. Nasarvanji Fakarji Surveyoi, M.D., M.A., B.Sc. (Bombay), M.R.O.P. (London), D.P.H. (Cambridge).

LIEUTENANT COLONEL A. V. ANDERSON, M.B., I.M.S., has been allowed by His Majesty's Secretary of State for India, an extension of furlough on medical certificate for six months.

His Excellency the Governor in Council is pleased to appoint Major T. Jackson, M.B., B.S., I.M.S., to be Medical Officer to the Káthiáwár Political Agency and in charge West Hospital, Rajkot, *vice* Lieutenant-Colonel H. W. B. Boyd, F.R.C.S. (Ir.), I.M.S., retiring, but to continue to act as Physician, St. George's Hospital, Bombay.

His Excellency the Governor in Council is pleased to appoint Captain V. B. Bennett, M.B., B.S., I.M.S., on return to duty, to act as Medical Officer to the Káthiáwár Political Agency and in charge West Hospital, Rajkot, *vice* Major T. Jackson, M.B., B.S., I.M.S., pending further orders.

Indian Medical Gazette.

OCTOBER, 1906

HETEROPLASTIC OVARIAN GRAFTING

SURGERY has to record a further step forward and this time a step that opens up a very large field for speculation and investigation. Dr Morris of New York records a case of heteroplastic ovarian grafting, followed by pregnancy and the delivery of a living child. In the account of this case (a paper read at the meeting of the surgical section of the New York Academy of Medicine), Dr Morris gives a short history of the patient. She began menstruating at fifteen and stopped at nineteen. For two years previous to the operation, the patient suffered from the common menopause symptoms, steadily increasing in intensity and were most marked when the monthly flow should have appeared. A diagnosis of ciliated ovaritis was made and preparation set about for the removal of the ovaries and for obtaining ovarian grafts from another patient. This was eventually carried out, the grafts being obtained from the healthy ovaries of a patient who was being operated on for uterine prolapse.

Dr Morris lays great stress on the removal of the ovaries by means of Tuffier's angiotube, the reason for choosing this method being that in operating by the ligation methods the total and complete removal of all ovarian tissue cannot be absolutely certain, and he insists that not even a particle of ovarian scraping should be allowed to fall back into the peritoneal cavity as a single detached ovum might live, in contact with the peritoneum, long enough to invalidate the experiment. The grafts were placed in a slit made through the peritoneum of the broad ligament, the cut surface of the graft lying in contact with the cut surface of peritoneum, thus favouring union, and the uncut surface of the ovary was allowed to project into the peritoneal cavity, to facilitate the free escape of ova. The ovaries removed from his patient were examined microscopically and found to be ciliated, distended with many small cysts and contained no formed Graafian vesicles.

Four months after grafting the patient menstruated, she did not do so again for five months and then only for a single day, but a month later she began to menstruate regularly with a flow for four or five days at each period. Four

years after the grafting the patient was delivered of a living child, weighing seven and one-half pounds.

Such is a short account of the case, and, as far as we can judge, we have a well defined instance of heteroplastic ovarian grafting, followed by pregnancy and the delivery of a normal child.

From experiments carried out upon rabbits and other animals, Dr Morris and other observers had concluded that, it was quite feasible to get a child in cases of homoplastic grafting. Where the ovary is removed from the body and then reintroduced in its original host there is a tendency for the ovary to live, and continue its function, when, on the other hand, the ovary is grafted from one animal into another, the principle of intolerance of the tissues of one animal for the tissues of another comes into play, and, as a rule, the grafts degenerate and are absorbed.

However, this intolerance is a matter of degree and in this successful case it is probable that the tissue intolerance was very little marked, indeed that may have been complete tolerance.

If this was the case we must look on the successful issue of the operation as a happy coincidence, and, before any great advance along the same lines can take place some method must be devised, whereby the tissues of an animal can be rendered tolerant of the tissues of another animal of the same species. Experiments have already been made on the principles of hæmotysis, rabbits were immunised to each other's serum and then ovaries exchanged, these ovaries were absorbed more rapidly than in animals not immune to each other's serum as would be expected.

A very interesting question or series of questions is opened up by this case of successful grafting. Which parent will the child most resemble? Hereditary characteristics are due to cell memories (Haeckel) and the further question arises, will the cell memory of an engrafted ovary be changed by the influence of its new host? Further, what is the legal status of the child? Whose descendant is it really—the descendant of the mother who bore it and who furnished the nutrition for its development and growth, or the descendant of the mother from whose ovum it sprang?

Simon, from a microscopical study of the changes following ovarian grafting, states that two stages may be observed. During the first

part of the time after grafting the ovarian cortex alone is nourished and retains its vitality, the medulla degenerating and disappearing. At the end of three or four months, however, the ovary regains its normal circulation and the ovarian cells begin to show signs of functional activity.

The possibility of the successful transplantation of ovaries has been demonstrated beyond a doubt. Schultz has shown that the transplanted ovaries become attached in their new position, whether it be the peritoneal cavity of the same female, of another female, of a male, or the female of a different breed. On females of the same breed he has observed that transplanted ovaries can give off eggs and form corpora lutea.

Enough work has been done on the relationship between the ovaries and metabolism to show that the ovary possesses an internal secretion.

Fraenkel believes that the corpus luteum is a ductless gland with an internal secretion whose function is to preside over the nutrition of the uterus and the imbedding of the fertilised ovum, and, in the absence of a fertilised ovum, the lutein secretion excites the menstrual flow.

The formation of the corpus luteum seems therefore to have a considerable bearing on the question of future pregnancies after heteroplastic ovarian grafting. From the results obtained by Schultz and those observed in Simon's microscopic studies there does not appear to be any insuperable difficulty why, with a properly performed heteroplastic grafting, fecundation and pregnancy may not result.

Regarding the experiments of injecting the blood of one animal into the blood of another, with the idea of establishing tissue tolerance, it has been stated that, from the results of work done in Metchnikoff's laboratory, if a small amount of blood from a male animal be injected beneath the abdomen of the female animal, the female is rendered sterile so far as that male is concerned. This has been tried on dogs and other animals and found to be true in every instance.

Accepting Dr Morris' case as one of successful heteroplastic grafting, careful and scientific observation of the hereditary characteristics of the child should throw new light on the interesting question, *the inheritance of acquired characteristics, i.e., are characteristics that have arisen during the individual life inherited or does inheritance deal with innate characteristics alone i.e., characteristics that have become established during the*

germinal development of the organism? Darwin, Haeckel, Eimer and others have defended the view that acquired characteristics are heritable, Weismann, on the other hand, has endeavoured to show in a long series of studies that only those characteristics are inherited the rudiments of which were already present in the germ-cells of the organism.

Mutilation experiments on adults have been carried out and would appear to support Weismann's view, but it is *a priori* improbable in the highest degree that injuries to limbs, etc., should be inherited, for it is hardly to be imagined that these parts stand in such relationship to the sexual cells, that their mutilation should exercise a marked influence upon those cells. The first requisite for inheritance of acquired characteristics is that mutilations or injuries should be performed upon such organs as stand in correlation with the sexual organs. In this successful result from heteroplastic grafting we have the ideal conditions fulfilled, and according to the hereditary characteristics the child exhibits, clear evidence should be forthcoming, whether influences which affect the germ-cells—the ovum and spermatozoon—during individual life cause the inheritance of acquired characteristics (in which case the child should resemble the woman who bore it), or whether these influences have no effect and only characteristics established during germinal development are inherited (in which case the child should resemble the woman from whom the grafts were obtained).

POST-GRADUATE COURSES OF STUDY

It is a matter for congratulation that many of the great colleges and teaching institutions at home are beginning to take a good deal of interest in post-graduate instruction. We published some notes last month from an Indian Medical Officer, who had gone through some of the courses and gave our readers the benefit of his experience and advice. But, besides the two well recognized schools of Tropical Medicine, many of the Universities, Colleges, and Hospitals are now giving post-graduate instruction.

Trinity College, Dublin, held their third annual course this summer, the subjects comprising medicine, surgery, gynaecology, diseases of eye, throat, ear and nose, disease of skin, pathological anatomy, X-rays and cystoscopy. Edinburgh will hold their post-graduate classes

in September and October Glasgow held their course during May, the course including demonstrations in neuro-pathology, laryngology and rhinology. In Leeds the staff of the dispensary is giving a post-graduate course of clinical demonstrations, being assisted by the members of the medical faculty of the University.

We have received the prospectus of the West London Post-graduate College where post-graduate instruction has been given since the year 1893. During the last thirteen years, over 1,000 medical men from all parts of the world have attended the classes and of these no fewer than 276 have been officers in the Naval, Army and Indian Medical Services.

The West London Hospital was the first hospital in London where the practice was strictly reserved for qualified men, and the college was the first institution of the kind in London to be attached to a general hospital. No junior students are admitted to the practice of the hospital. Besides the routine work in the medical and surgical wards instruction is given in the out-patient department of the hospital. There are also special departments for diseases of eye, the ear, throat and nose, the skin, diseases of women, medical diseases of children, medical electricity, orthopædic surgery and X-ray work. Instruction is given in the administration of anæsthetics and demonstrations on recent pathological specimens are held every week. The practice of the hospital is well-adapted to the needs of the medical officers of the Royal Navy, Army and Indian Medical Services on study leave, and arrangements can be made for all special classes required.

The certificate of attendance at the college, during study leave, is recognized by the Admiralty, the War Office and India Office.

One of the special features, and one too, which is of great importance to members of the services, is the appointing of post-graduates to act as clinical assistants in the medical, surgical and various out-patient departments for periods varying from three to six months.

Everything possible appears to be done for the comfort of the members attending, reading and writing rooms, coffee rooms, lavatories, etc., being provided. There are two courses held in the year, the vacation course begins in August and the winter course in October.

The hospital and teaching staff is exceedingly strong including the names of many well-known in the profession. A specially attractive feature

of the institution is that the large medical library belonging to the West London Medico-Chirurgical Society is housed in the college, and post-graduates have the use of the books and periodicals, they also are permitted to borrow and take home books at a nominal charge.

That this institution is deservedly popular with the Medical Services is evidenced by the large number of Service Officers its list of members contains. Between sixty and seventy Indian Medical Officers have taken out the courses during the last few years, and this occurred before the recently introduced study-leave rules came into force. In future we expect to see a greatly enhanced number of officers of the different services attending these post-graduate classes, much to their own benefit and to the benefit of the State.

Current Topics.

PHYSIOLOGICAL ACTIONS OF ERGOT

IN a long and exhaustive study (*Journal of Physiology*), from the Wellcome Physiological Research Laboratories, H. H. Dale, M.A., B.C., deals very fully with the action of ergot covering that of chrysotoxin, sphacelotoxin and cornutine.

He arrives at the following general conclusions:

1 The physiological effects of preparations from ergot, such as cornutine and sphacelotoxin, fall naturally into two groups—

- (a) Stimulant effects on plain-muscular organs, prominent among which are contraction of the arteries, the uterus and the sphincter of the iris.
- (b) A specific paralysis of the motor elements in the structures associated with sympathetic innervation which adrenaline stimulates, the inhibitory elements retaining their normal function.

2 It is probable that these two sets of effects are produced by different active principles.

THE CALCUTTA MEDICAL JOURNAL

THE third number of this journal has been received and contains several articles of interest. Dr. C. L. Bose Bahadur discusses in a long and interesting paper the toxic principles of the fruits of *Luffa Ægyptiaca* Mill (bitter variety). He subjoins a table giving a list of the more important plants belonging to Cucurbitaceæ with a note on the medicinal uses of each. M. Mitra, F.R.C.S. (Ed.), discusses hæmatemesis in Cholelithiasis—an unusual symptom in gall-stones, laying stress on the danger of mistaking the condition for gastric ulcer. In his case he

considers the hæmorrhage due to cirrhosis with the rupture or ulceration of a varicose vein Indumadhab Mallick, L.M.S., has a very suggestive paper on raw meat juice in mal-assimilation in children, showing the importance of proteid diet in the healthy development of the child and that massage is a potent factor in increasing assimilation (irrespective of the lubricant used) He gives some rules for guidance regarding the indications for and against this method of treatment in mal-nutrition

THE SPIROCHAETA DUTTONI

DR ANTON BREIUL and DR ALLAN KING-HORN, working in the Runcorn Research Laboratories of the Liverpool School of Tropical Medicine, have been able to prove experimentally the passage of the Spirochaeta Duttoni, the organism of African relapsing fever, from mother to foetus in the case of four rats and one guinea-pig

They arrive at the following conclusions

i Spirochaeta Duttoni passes through the placenta from the circulation of the mother to that of the foetus

ii The majority of the foetuses carried by an infected mother are themselves affected

iii The parasites are found in the placenta in approximately the same numbers as in the maternal heart blood, but, on the contrary, occur in very scanty numbers in the foetal circulation

iv The Spirochaeta in the foetal circulation shows no morphological changes

v Infected pregnant rats show no tendency towards abortion, but few of their offspring reach maturity

vi The young, born of infected mothers, possess no marked inborn immunity against infection, either by means of direct inoculation or through the bites of ticks

In an article entitled "A means of checking the spread of sleeping sickness" for a reprint of which we are indebted to Dr Todd, Director of the Runcorn Research Laboratories of the Liverpool School of Tropical Medicine, the following measures are recommended

1 The establishment of medical posts of inspection along the trade routes leading from infected to non-infected districts

2 The removal of infected persons from posts in uninfected districts to places already infected, Negroes in the first stages of human trypanosomiasis are often apparently well, but recently a means of detecting such cases has been devised Even early cases show enlarged lymphatic glands, and Grieg and Grey have shown that trypanosomes can easily be found in the juice of these glands on aspiration with a hypodermic syringe Dr Todd shows from a history of the various epidemics that the spread of human trypanosomiasis is slow and that infection can easily be carried into a non-infected area by an infected person, the tsetse-fly doing the rest,

so that by guarding the lines of communication it would be quite possible to lessen the risk of the dissemination of the disease, to those places where the tsetse-fly is known to be present

BACTERIOLOGY OF CONJUNCTIVITIS

In a long and interesting article* by Dr Duane and Dr Hastings on the "Bacteriology of Conjunctivitis" the following conclusions are arrived at —

i There is no special type of conjunctivitis associated with any special germ The clinical picture, therefore, affords no clue to the germ causing the conjunctivitis

ii While certain organisms like the gonococcus, diphtheria bacillus and streptococcus usually cause severe reaction and the other germs regularly produce much slighter effects, this rule has many exceptions, and no sure deductions can be drawn from the intensity of the inflammation as to the germ causing it

iii Membranous conjunctivitis, as is well known, may be caused by a variety of organisms It does not necessarily indicate a severe inflammation, nor one that will always produce other evidences of excessive reaction, besides the false membrane

iv In trachoma, particularly trachoma in the stage of acute exacerbations, a variety of organisms may be present

v The staphylococcus albus and aureus when occurring in the conjunctival sac are sometimes at least pathogenic, and distinctly predispose to the production of corneal lesions

vi Very mixed infections seem, if anything, to be less severe than those in which one germ is the predominant infecting agent

THE Annual Indian Industrial and Agricultural Exhibition is to held in Calcutta next December on the site of the Old Tramway Depot and on the extensive grounds adjoining the General Hospital This Exhibition has been held annually since 1901 and has assisted greatly in popularising and encouraging Indian arts and industries

We call attention to it from the point of view of exhibits of optical instruments, medical and surgical appliances, medical instruments and appliances connected with sanitation and hygiene, all of which should be of interest to the medical profession of Calcutta and India generally We may hope to see the latest and most up-to-date improvements of medical and surgical instruments and hygienic appliances exhibited

LONDON SCHOOL OF TROPICAL MEDICINE

THE winter session of the London School of Tropical Medicine will be opened on October 8th An introductory address will be delivered by

* New York Medical Journal

Oct, 1906]

Colonel Kenneth MacLeod, M.D., LL.D., I.M.S., Honorary Physician to the King. The Duke of Marlborough will be in the chair and will also preside at the students' dinner which will be held in the evening.

MOSQUITO NETTING

WE have had samples of the Ramie Untearable Mosquito Nettings and Muslins sent to us. The glass fibres from which this material is made is grown in China and in some parts of India.

It appears to be extremely strong, and the manufacturers claim that it will stand indefinite washing without tearing, even constant washing by an Indian dhobi. Considering how very frequently one's sleep is disturbed by the entrance of mosquitoes through small tears in one's net, this new material should prove a great improvement on the present stuff of which mosquito curtains are made. Besides being untearable, it is also said to be rain-proof and rot-proof, and may be expected to outlast in wear anything of the same nature at present to be had.

H. R. H. THE PRINCE OF WALES has been pleased to grant a Warrant of Appointment to Messrs Smith, Stanistreet & Co. as "Chemists to H. R. H. the Prince of Wales."

H. E. Lord Minto has also appointed Messrs Smith, Stanistreet & Co. Chemists to H. E. the Viceroy, this being the thirteenth such appointment received by this well-known firm, who have been appointed Chemists to practically every Viceroy since Earl Canning (first Viceroy, 1858-1862).

OWING to an oversight, the photograph of a case of Molluscum Fibrosum, published on page 332 of the August issue of this Gazette, was inserted in the middle of Captain Connor's article on "Yaws in the Manipal State," which, of course, it was not intended to illustrate.

Reviews

X-Rays in General Practice — By A. E. WALTER, CAPTAIN, I.M.S., Superintendent of the X-Ray Institute of India. 174 pages, 47 Illustrations. Price 5/- Publisher, John Lane, London & New York.

DEDICATED to Sir Benjamin Franklin, this book is intended for the use of the general practitioner, the student and other non-experts in X-rays. It begins with a brief historical sketch, and an assurance that with reasonable care an X-rays apparatus is not difficult to keep in working order, and a refutation of the imputation that patients run any risk during radiography at the hands of a competent operator.

In the absence of an electric main Obach's dry cells are recommended as the most convenient source of electricity in preference to an induction machine or a small dynamo. They are very simple, require no cleaning, and with a moderate amount of work, last for from one to two years. Sound advice is given on the coil, interrupter, focus tube and other parts of the apparatus required for skiographic and screen work. A chapter is devoted to the taking of skiagrams and is full of practical hints on the procedure in general, and on the best way of obtaining good skiagrams of different parts of the body. The author describes his Field Service apparatus which is carried on mules. Reliance here is chiefly placed upon screen work, for the obvious reason that at times of pressure when the apparatus might be most useful it would be of no practical value if reliance had to be placed upon the possibility of obtaining a skiagram. The arrangements for making a tent light-tight are ingenious. What is said on the localisation of foreign bodies shows what a simple matter this is if the procedure is properly carried out. The mechanical part of the book ends with a practical chapter on photography.

The author next turns to the consideration of the therapeutic action of X-rays, prefaced by a description of their action on tissues and the treatment of X-ray burns, and some pages are here interpolated dealing with the effects of radium and high frequency currents. As regards the action of X-rays on bacteria the conclusion is formed that organisms in living tissues can be destroyed by the rays, while the same organisms in culture are uninfluenced.

The rest of the book deals with the treatment of skin lesions, and cannot be satisfactorily condensed. The effect of the rays on leprous lesions has had little attention paid to it. Our own experience (in a single case only) agrees with that reported by the author, namely, that under the influence of the rays an improvement takes place in the exposed parts. We may add, however, that while the sittings were being given there appeared a general implication of the skin, hundreds of leprosy nodules appearing all over the surface, and the face, which had before been free, taking on the leonine type. Immediate improvement followed the injection of Rost's leprolin.

The skiagrams used in illustration are very good, but fig. 33 has been printed upside down. We hope, that the appearance of this book will hasten the time, which must come sooner or later, when every sadder dispensary in India will have an efficient X-ray apparatus in daily use.

Aids to Surgical Diagnosis — By H. W. CARSON, F.R.C.S. Publishers, Baillière, Tindall & Cox, London. 140 pages.

THE author says in his preface, "This little 'Aid to Surgical Diagnosis' is intended for the use of students and practitioners who may desire

to obtain in a small compass the main points in the diagnosis and differential diagnosis of the common surgical disease. No attempt has been made to deal with special diseases, and the desire to prevent overelaboration or repetition may have led to some incompleteness in detail. The book does not, in our opinion, lay the foundation of diagnosis on a rational basis—the only one which is of any real value to the student, but partakes too much of the nature of a cram book. The differential diagnosis of tumours is not mentioned, and these cannot be looked on as “special diseases.” The book is up to-date, but it does not appear likely that it will displace the larger and more complete works already in the field.

Diagnostic Methods—By Prof. HERMANN SAHLI
W. B. Saunders & Co

UNDER the above title is published, the first authorised translation of Prof. Sahli's *Clinical Methods of Investigation*, which has already reached a Fourth and Enlarged German Edition. Neither title adequately expresses the wide scope of the work, for, as the editors truly state, not only are all methods of examination for this purpose of diagnosis exhaustively considered, but the explanation of clinical phenomena is given and discussed from the physiological as well as from the pathological points of view with a thoroughness which has not been attempted in any clinical work that has yet appeared. The volume is a notable acquisition to English medical literature, yet we cannot help regretting that it seemed wise to publish the translation practically as the original came from the pen of the author. Prof. Sahli seems to be singularly unfamiliar with the work of his English-speaking *confères* and beyond a few notes the editors have added little to the original, the value of which might have been greatly enhanced by more copious notes and references to more recent work, and more especially to the work of American and English writers. The most valuable addition made to the work is a series of excellent photographic illustrations derived chiefly from cases in the wards of the Massachusetts General Hospital.

Connected criticism of a volume with so wide a range is impossible within the limits of such a notice as this, and Prof. Sahli makes it difficult, because he approaches his subject not systematically but conveniently, as would a clinician his patient. He considers symptoms and signs as they naturally occur in the course of an examination. It is for this reason that we come early upon brief but masterly *résumés* of the pathology of jaundice and oedema in connection with cutaneous signs of disease. We are glad to see that the author gives decent burial to the disputed theory of hæmatogenous jaundice by including it under the wider theory of hæmato-hepatogenous jaundice, but we regret to find that his theory of oedema is purely hydrodyna-

mic, notwithstanding that much recent investigation has proved that the retention of Sodium Chloride is an important causal factor in the production of oedema, especially in renal disease. Discussion of the skin brings up the subject of the collateral circulations venous and arterial, which may be in evidence on the abdominal and thoracic walls. The illustrations in this connection are excellent and will save the student much labour in references to special works on anatomy.

The article on Temperature is sketchy and unsatisfactory, especially in the parts that deal with malarial fevers, but on the other hand we find within the fifty pages devoted to the Pulse a more thorough and up-to-date account of the subject than is to be found in many volumes exclusively devoted to this subject. Prof. Sahli's critical consideration of sphygmomanometry and sphygmometry leads him to be disposed to rehabilitate the latter which he considers gives reliable, even though they be merely relative data. But the author's experience of sphygmomanometry seems to have been chiefly with Von Basch's instrument and his own modification of it. It is true that the Riva-Rocci and the Gaitner instruments are discussed, but the author seems to be under the impression that it is impossible to get even a near approach to absolute measurements with such instruments, although it is well known that direct manometric measurements differ inappreciably. The editors seem to have felt the weakness of this section to which they have added a corrective supplement. It is certain that the instruments of Janeway and of Spanton and of Oliver are almost unrepachable. The latter has now been so improved that it is possible with it to obtain measurements of the maximum pressures both systolic and diastolic.

In the next two hundred pages devoted to the discussion of palpation, percussion and auscultation and the results obtainable thereby, there is a lamentable want of orderliness and one's attention is taxed with an annoying transition from one organ to another. The articles on pulmonary disease are excellent. We note, however, that Prof. Sahli credits Bass and not Beau with the theory of the laryngeal origin of the vesicular murmur, and that he himself for reasons that seem to us inadequate prefers the original theory of Laenec of its intrinsic pulmonary origin. It, on the other hand, we find ourselves less able to commend the articles which deal with the heart, it is not because they are not enriched with a wealth of detail, not because they are not characterized by originality and lucidity of exposition, but because Prof. Sahli in the discussion of cardiac lesions seems sometimes, in the words of a philosophical physician, to lose the conception of the heart and arteries as a plenum. He seems at times to forget that the heart is endowed with a reserve capacity which can and does meet the exigencies of an early

lesion. He explains too much by compensation, failing to remember that this expression is figurative, its connotation teleological, and that all we really know is that increase of function within certain limits creates structure, the so-called compensatory hypertrophy. In the consideration of cardiac murmurs it is not made sufficiently clear that they are due to molecular collisions in a plenum setting surrounding structures, chiefly the walls of the heart, in vibration. There is a series of excellent diagrams to illustrate the conduction of murmurs, but nowhere is it distinctly pointed out that conduction differs from place to place, that a murmur may not be audible at the very site of its origin, and more, that a murmur may disappear at one spot and reappear at another with a totally different character. In this connection we would indicate one singular omission. The characteristic conduction of mitral regurgitant murmurs into the axilla is absolutely ignored by the author. We would draw special attention to the excellent discussion of accidental murmurs.

A great deal of original work is introduced into the section dealing with stomach and bowel, and here as elsewhere he amply vindicates the claim that his book is no mere compilation. But the vast majority of the methods of study here indicated are not clinical. Most of them can only be carried out in a well-equipped laboratory, and some of them need the skill of an experienced chemist. To the practitioner in this country in particular it will be satisfactory to find that Prof. Sahli indicates in detail the means by which, without test-meals and stomach tubes it is possible to form a fair appreciation in most cases of the state of the functions of stomach and bowel.

The elaborate consideration of urine and its possible constituents makes this section of the author's work a perfect little monograph on the subject. There is here a wealth of detail on chemical constitution which makes us wish there were as great wealth of pathological application and diagnostic inference. We have chemistry *ad nauseam*, and it is almost a relief to find Prof. Sahli himself make the slip of confusing nucleo-albumin with nucleo-proteid. It is the latter and not the former, which on decomposition yields a nuclein. Moreover the so-called mucin of urine yields on decomposition neither nuclein, nor pseudo-nuclein (nucleo-albumin). It is a gluco-proteid which yields carbohydrate and proteid. Probably the most interesting portion of this article on urine is that which deals with the comparatively new subject of cryoscopy or the estimation of the freezing point of urine. As this varies with the molecular constitution of the urine it serves as a measure of the osmotic pressure of the urine, and therefore as an index to the efficiency, the work done by, or as we prefer to say, done in the kidney. Prof. Sahli is a follower of

Heidenhain. For him urine is entirely due to the secretory activity of the kidney. Filtration under cardiac pressure takes no part in its formation. If the osmotic pressure of urine is a true measure of renal work then to Prof. Sahli a urine of low osmotic pressure, the secretion of which nevertheless entailed work, is inexplicable. This is one reason for his adverse criticism of cryoscopy of the urine, a reason which at once loses its weight if we remember that later experimental work has tended to re-establish the filtration theory of urinary secretion propounded by Ludwig. The second reason for adverse criticism is that although the difference of the molecule is immaterial in calculating potential energy stored up in the urine, it is still quite possible that it takes more work for example to excrete a molecule of urea than it does to excrete one of sodium chloride, the difference being represented by heat evolved. It has not, however, been argued that osmotic energy gives an absolute measure of renal work or of renal plus cardiac work done in the kidney, and therefore, it would seem to us that such criticism as the above places Prof. Sahli much in the position of the engineer who refuses to accept the output of a pump as any measure of its relative efficiency. Cryoscopy of the urine can be supplemented by cryoscopy of the blood against which Sahli raises no objection other than its difficulty. We would seem to have obtained in these a useful measure of relative efficiency.

Perhaps in no clinical department has more been done in recent years than in the study of the blood under normal and under pathological conditions. In this department at any rate Prof. Sahli is a servile compiler from Ehrlich. He seems unacquainted with the work of Sherrington and Hardy, of Kanthack and Adams, who, at any rate, proved that the so-called neutrophile cell does not exist, and who introduced a simpler classification of the elements of the blood. This, however, is a minor matter which might have been let pass had the author given us a uniformly clear account of the diagnostic significance of the different blood pictures and full details of the methods for procuring them. To dispose of the latter first, the technique of staining dry films is not nearly as simple as the author would seem to think and nowhere in this section do we find a consecutive account of the various methods. Only a brief mention of the Ramanowsky and none whatever of the Leishman stain argue a certain negligence in the preparation of this portion of the work. The primary anæmias are adequately dealt with, but the discussion of the secondary anæmias and the leukæmias has the appearance of an undigested mass of detail. Prof. Sahli's knowledge of malaria seems to have been derived solely from the works of Bignami and Celli and of Koch. Laveran receives incidental mention. Ross, Manson and the host of other workers in this

field are practically ignored. The net result is an unworthy treatment of an important subject in a great book.

A brief and necessarily meagre account of special subjects, throat and eye, is followed by a valuable article on exploratory puncture, valuable that is in so far as it brings up the subject of cytodiagnosis. Prof Sahli raises logical objections to the validity of conclusions arrived at from the study of exudate pictures especially as to the tubercular or non-tubercular, the malignant or non-malignant nature of the underlying process. We accept that first commandment of clinical diagnosis, to diagnose from all the symptoms and never from a single one. Are we therefore not to give them relative value to exudate pictures? The systematic examination of exudates has led to excellent results. Of the methods of examining them cytodiagnosis is the only one that is clinically available and cannot be lightly discarded because not infallible.

The last section of this article consists of a series of articles on the nervous system upholding views that are interesting, but which provoke question and criticism. Some dogmatism may be permitted to a great clinical teacher, but this volume is addressed to the entire medical world, and we consider that cerebral physiology is sufficiently advanced to justify our disputing Prof Sahli's right to speak of the Rolandic area as psychomotor and yet to interpret its activity as being sensorimotor. That the posterior columns of the cord terminate near the Rolandic area or at any rate pass under it is certain, but that they terminate in the Rolandic cells is not proven. Prof Sahli seems to go beyond the established facts, but then the professor believes in an innervation sense the existence of which is disputed by most recent psychology. The motor area would seem to be for him the centre for motor representations, for the neural explosions which result in efferent motor impulses, for the consciousness of such explosions (innervation sense), and for the consciousness of motion achieved.

We confess that to us the "obscure term," muscular sense, is a more acceptable conception, both psychologically and psychophysiological. It is at any rate a sense for which there are demonstrable end organs and afferent channels.

Cerebellar function receives but slight recognition from Prof Sahli. That the cerebellum does influence muscular tone he is constrained to admit by reason of Luciani's ablation experiments, but he fails to remember that not only paratonia but also parasthenia and astasia were the results of the experimental ablation. It does not follow that he should admit the validity of the Hughlings Jackson hypothesis that the motor cells of the cord are under direct control of cerebral and cerebellar influences inhibitory and excitatory respectively, but he should at least have recognized the bearing of this theory on the doctrine of the origin of

spasms and of reflexes. The results of complete transverse lesions of the cord above the lumbar enlargement seem to confirm the Jacksonian hypothesis. It was Bastian who first pointed out that such lesions, provided they are complete, result in relaxation of the muscles and complete loss of reflexes. His observations have been confirmed by Bowlby, Thorburn and Biuns of Hanover, and are accepted by most British neurologists. Unable to entirely controvert Bastian's observations, Prof Sahli nevertheless asserts that when the transverse lesion is immediately above the lumbar enlargement the reflexes instead of being abolished are exaggerated. The grounds for this statement are not clear as there is no *post-mortem* evidence of the completeness of the lesions in the alleged cases. Sahli's theory for the disappearance of the reflexes when the lesion is higher in the cord is that, under these circumstances afferent stimuli get dissipated by passing into the collaterals that enter the grey matter at different levels of the cord. Why this dissipation should not occur when there is no lesion at all is not apparent. But when the lesion is directly above the lumbar enlargement the stimuli are dammed back and so cause exaggerated reflexes. This is after all only an old abandoned theory of Brown-Sequard revived by the author in order to replace an equally untenable theory of Jendrassik who maintains that under pathological conditions new reflex arcs form. Post-hemiplegic rigidity and intention tremor are given explanations that we are unable to accept. The former he denominates an active contracture, an expression the meaning of which is not very definite. The contracture, however, it seems can be inhibited by the undegenerated pyramidal axons even when separate from their cells! Intention tremor Prof Sahli for wholly inadequate reasons attributes not to unsteadiness of contraction due to blockage in the pyramidal tracts but to a clonic spasm. We are unable to admit the physiology of these explanations.

Still less able are we to accept the extraordinary extension that the author gives to the term ataxia. By this term he denotes the inco-ordination that follows a lesion in either afferent or efferent limb or in the centre itself of a motor arc. The inco-ordination that may follow on paresis or partial paralysis is therefore ataxia. This we maintain is an unjustifiable extension of the denotation of the term.

It is impossible to follow Prof Sahli through the whole of his exposition of the methods of study and discussion of the pathology of nervous disease. With the latter we find ourselves often unable to agree but of the merits of the former we are well assured. We venture to surmise that a strong psychological bias influences the professor in his discussion of nervous diseases. Nowhere is this more manifest than in his vigorous defence of the Cichtheim-Wernicke diagrams and theories of the aphasias, the work

of men strong in psychology and striving to compel pathological facts into the service of psychological theories of the function of speech. The fictitious simplicity of theory and diagram are gone as soon as we remember that the concept centre is not one, but many scattered over all the silent regions of the cortex.

This is eminently a book that stimulates thought and therefore a notable addition to medical literature. If we might suggest another title it would be clinical interpretations and diagnostic methods. Among the former alone do we find occasional ground for criticism and disagreement.

The editors have done their work exceedingly well and the book is very free from the flaws so apt to occur in a translation. The printers, however, cannot be accused of such an error as the following page 137 "The muscles should be relaxed because compression through thick muscle *does not affect the result*." Soon after we read a *median* arterial pressure, meaning mean. On page 275 we come on the enigmatic phrase, "*the possibility seems possible*," and on page 318 we meet the careless expression, "*the systole contracts*." But these are only accidents. The one grave error in our eyes is that the editors did not dare more in the matter of addition and elision.

The publishers have done their best to produce as perfect a volume as possible, with numerous illustrations that make it more valuable than the German original. The book is of 1,000 pages. It is bulky and heavy and might well have been published in two volumes even though the rest of the series are single volumes. Why make a bugbear of a foolish consistency?

Students' Hand-book of Operative Surgery — By W. I. M. C. WHEELER, F.R.C.S. Pages XII and 300. Illustrations 134. Crown 8vo. Price 5s net. Baillière, Tindall & Cox, Henrietta St., London.

THIS small book contains a description of the operations usually performed on the dead body. Only one method of performing any particular operation is described, and that the usual one, so that the students' minds may not be disturbed with half a dozen different ways of doing any one operation.

The accounts given are clear and concise, the illustrations are good and the book should be of use to those commencing a course of operative surgery.

Phlebitis and Thrombosis. — By WARRINGTON HAWARD, F.R.C.S. Pages VIII and 88. Plates 8. Demy 8vo. Price 5s net.

THIS book is a reprint of the Hunterian lectures recently delivered. The first lecture describes the causes of thrombosis and its pathology and concludes with septic phle-

bitis. In the second lecture phlebitis of non-septic origin is dealt with, the author considers that the cause of some cases must still be called idiopathic and that the theory of the gouty origin does not cover all the doubtful cases.

Finally thrombosis occurring in special situations is discussed.

As regards treatment, citric acid is recommended and the author has never found belladonna to be of service.

The book is well got up and the plates are also good.

"Enteric Fever in India and in other Tropical and Sub-tropical Regions" — A study in Epidemiology and Military Hygiene. By Major ERNEST ROBERTS, M.B., D.P.H., I.M.S. Pp 571. Price Rs 12. Publishers, Messrs Thacker, Spink & Co., 1906.

IN a handsome volume of 571 pages Major Roberts has presented to the profession a most valuable contribution towards the elucidation of the many difficult problems in etiology which have hitherto baffled both the Epidemiologist and the Pathologist.

Notwithstanding the great improvements in sanitation which marked the last few decades of the Nineteenth Century, the incidence of enteric fever has not been reduced, on the contrary there has been a steady increase in the disease amongst the British army in India, an increase which is all the more remarkable when we remember that during this period cholera in epidemic form has been practically stamped out.

The vital importance of this question is clearly shown in the following quotation from the speech made by His Excellency the Commander-in-Chief in opening the proceedings of the Committee on enteric fever which is now assembled at Simla.

"There are three principal diseases whose ravages cripple our troops, malaria, venereal, and enteric. I am glad to say with regard to the two former we have made very successful progress in limiting the evil, but when we come to enteric we are still very much where we were. Last year there were no less than 1,146 admissions and 213 deaths from this disease, an improvement record on 1904, but I regret that during the current year to the end of June, we already had 513 admissions and 126 deaths. *It is evidently our duty to fight enteric fever in every possible way.*"

With these remarks we entirely agree, but before you can fight an enemy successfully it is essential that you should be quite certain in your mind upon two points, firstly, what is the true nature of your enemy, and secondly, whereabouts will you look for him, and it is the elucidation of these two points which is the real object of Major Roberts' thesis, as is indicated by the sub-title. The ten chapters into which the work is divided literally bristle with useful information and the text is enriched with

thirty charts, diagrams and maps, and over 80 statistical tables, whilst the last chapter contains more valuable suggestions for the improvement of the conservancy in cantonments. But the most interesting and suggestive portion of the book will be found in Chapter VIII, which deals with the subject of enteric fever amongst natives of India, and discusses the biological factors in operation as affecting the question of a relative immunity possessed by them. Major Roberts, with characteristic humility, begun by averring frankly that the evidence brought forward on this point comprises a "very small modicum of the sound bread of fact diluted with an intolerable quantity of the sack of vague opinion," but there are occasions when the stimulating properties of sack are more desirable than the sustaining power of dry bread, and the thoughtful reader will derive far more benefit from thinking out the logical conclusions which follow from the author's speculations on the evolution of pathogenicity in saprophytic micro-organisms than he could possibly obtain from the study of columns of statistics.

Major Roberts rejects the view that the apparent immunity of the Indian is due to "Saturation" with the enteric poisons, and in discussing the question of infection contracted in the bazaars by European Troops arrives at the conclusion that the evidence is much more in favour of the view of the infection of these haunts by the troops themselves. He believes that the Indian possesses a natural immunity of a two-fold nature, partly racial, the result largely of structural differences in the intestinal canal, and partly acquired as the result of differences in diet, habits, and surroundings and by adaptation of the organism to the most prevalent disease causes. In this connection he points out the extreme prevalence of bowel diseases, and especially dysentery amongst Indian patients, and he argues that it is probable that the reaction of the tissue to various kinds of *b. dysenteriae* is likely to confer local immunity against the closely allied *b. typhosus*. It is a well-known fact in metabiosis that the end members of the sexes are often in antagonism, and therefore it is quite possible that vital reaction in response to the stimulation of the commoners "filth" bacteria of the coli group may afford protection against the attack of the more highly evolved *b. typhosus*. But one must always remember that in the production of the symptoms of disease there is the reaction of the tissue cell to be considered, and it is possible that adaptation along different lines may in time produce marked differences in tissue reaction to the same disease stimuli. Here comes in the question of "stress," which as Mott has shown is such a powerful factor in determining the point of incidence of the two great parasympathetic lesions, General Paralysis of the Insane and Tabes. Why then should it not influence

the point of incidence here? It is well-known that the greatest stress is upon the large bowel in the vegetarian Hindoo and upon the small bowel in the flesh-eating European. Is it therefore too much to suggest that there is no true specificity about either of these two "filth" diseases? that they are essentially similar in origin, both due to the development of pathogenicity in the ordinarily saprophytic *b. coli*, and that the difference as regards point of incidence and symptoms are the result of the action of several factors in the host, such as stress and variations in local tissue immunity, as well as alterations in the microbe itself due to differences of environment and especially to loss of control in the caecal cesspool.

Major Roberts is very much inclined to take this view, and thinks it possible that, given favourable conditions, *b. typhosus* may develop within the intestinal canal from allied and lower forms of the coli group. In fact we come back to where Murchison started when he christened the disease "Pythogenic fever," much in the same way that after a lapse of a hundred years we have now reverted to Bright's original views as regards the pathology of Nephritis. The importance of this view lies in the fact that if enteric fever can be self-developed, then it is not sufficient merely to hunt for the germ outside the body—it is essential in every way to improve the general hygienic condition of the host with a view to increasing his tissue resistance and removing those conditions which favour the development of pathogenicity within the intestinal canal. Possibly this may be the secret of the failure of all our efforts to stamp out this fell disease. Be that as it may, there can be no doubt that Major Roberts' book gives food for thought to all those who are interested in the great problems of prophylaxis, the essential point of which, as Hueppe has put the case, is to make the house fire-proof rather than to dissipate energy in the extinction of sparks.

SANITATION

Further note on the use of Chloride of Lime to sterilize septic tank effluents.—The previous note on this subject showed that the mixing of 5 grains of chloride of lime per gallon gave an effluent that was virtually sterile and might with perfect safety be discharged into a river. The object of this paper is mainly to set forth the best method of adding the sterilizing agent and to discuss several matters relating thereto.

2 Before, however, taking up this part of the subject, there are a few experiments I wish to allude to briefly. In the first note it was laid down that 5 grains of chlorinated lime per gallon was sufficient for all practical purposes, as in the few surviving colonies nothing but the common sporulating bacilli could be found. Having now a laboratory at my disposal, it appeared desirable to go a little further than this and investigate the effect of smaller quantities than five grains per gallon on the various bacilli contained in sewage effluent. Accordingly 7 litre flasks were taken and filled up with the Kancharadara effluent, to these were

added the equivalent of 1, 2, 3, 4, 5, 6, 7 grains per gallon. A stock solution which contained 0.143 grains of chloride of lime in 5 c c of water—0.143 grain per litre is the equivalent of one grain per gallon—was made and 5, 10, 15, 20—35 c c of this mixture was added to each flask, these allowed to stand for 15 minutes. The sample of chloride of lime taken was a poor one, it only yielded 21.5 per cent of available chlorine. This comparatively weak sample was taken designedly, because it was desired to keep conditions of the experiment as near as, or if possible below what would obtain in the everyday use of the method at the latrine.

3 From each of these flasks the following determinations were made (i) the total surviving colonies in 1 c c were counted, four plates from each flask were made with agar in the usual way, (ii) to see if the coli had survived 1 c c of the sterilized effluent was added to MacConkey's solution of taurocolate of soda and lactose, the tubes were incubated at a temperature of 42°, (iii) as a test for sporogines enteriditis of Klein, 1 c c was added to sterile milk, the tubes heated to 80° for 10 minutes, vaseline added to make the growth anaerobic, and incubated 42° for 48 hours. As a further confirmatory test after counting the colonies in the four plates, one of these was taken and about 10 c c of sterile water added to the plate and stirred about with a platinum wire so as to get an emulsion of the bacilli present in the medium, half of this emulsion was added to another set of MacConkey's solution test-tubes and the other half to sterile milk. The results of these experiments are given in tabular form below—

fully oxidised. A chemical analysis is given below, it will be seen how good it is—

Oxygen absorption from perman- ganate	4 hours	1.01 parts per 100,000
Chlorides	4.40	" " "
Free Ammonia	0.08	" " "
Albuminoid Ammonia	0.05	" " "
Nitrous Nitrogen	0.09	" " "
Nitric Nitrogen	3.31	" " "

6 Obviously therefore the conditions were as favourable as possible for the action of sterilizing agent. But as very few effluents come up to this standard of excellence it is necessary to confirm these results on less favourable material. Consequently the experiments were repeated on a distinctly bad effluent obtained from the beds at Entally. This fluid is coloured and contains a good deal of fine suspended matter. From a series of observations it yields about a million colonies per cubic centimetre and gives the coli reaction with $\frac{1}{600,000}$ or $\frac{1}{700,000}$. The chemical analysis given below demonstrates its impurity—

Oxygen absorption from perman- ganate	4 hours	5.20 parts per 100,000
Chlorides	5.60	" " "
Free Ammonia Nitrogen	0.912	" " "
Albuminoid Nitrogen	0.56	" " "
Nitric and Nitrous Nitrogen	Nil	" " "

7 To this effluent chloride of lime was added in exactly the same way as described above, the same stock solution being used and the coli and sporogines were

Grain per gallon	PLATES				Average	1 c c Chlorina- ted effluent added to MacCon- key's solution	1 c c Chlorina- ted effluent added to sterile milk	Washings of plate added to MacConkey's solution	Washings of plate added to milk
	1	2	3	4					
1	178	187	190	175	182	-	+	-	+
2	180	163	110	147	150	-	+	-	-
3	87	100	116	94	99	-	-	-	-
4	76	69	87	75	77	-	-	-	-
5	28	23	75	51	44	-	-	-	-
6	14	25	56	16	28	-	-	-	-
7	38	14	10	37	25	-	-	-	-
Control Diluted $\frac{1}{100}$	175	234	190	210	20,200	Gave reaction with $\frac{1}{1000}$	Gave reaction dil $\frac{1}{1000}$	+	+

4 It will be observed from the table that the efficiency of chlorine as a sterilizer is remarkable. One grain per gallon of an indifferent sample will reduce the number of bacilli from 20,000 to 182 per cubic centimetre, and will kill all the coli present, but will not kill all the sporogines enteriditis. It will be noticed that in both sets of observations, those with the chlorinated effluent and the ones with the plates after 48 hours' growth, no coli could be found. As to the sporogines I wish to make a proviso. The bacillus that gives the tests with milk differs in one respect from the one described by Klein, viz, that Klein's organism is an obligatory anaerobe, whereas the one found in this country in sewage is only a facultative anaerobe, it grows equally well either anaerobically or aerobically. In all other respects, its action on milk developing gas and clotting the casein and its lethal action on guinea pig, it resembles the real germ. Whether this organism is really sporogines enteriditis or not, I do not pretend to say, but it is always present in sewage and septic tank effluents and in water contaminated with sewage. I have never yet found the bacillus in samples of water that do not give other evidence of sewage pollution. In this table it appears that 3 grains per gallon are necessary to kill off the so called sporogines.

5 Now it must be stated that the Kanchrapara effluent is practically a perfect effluent, it is clear, free from suspended matter, and the organic matter is

tested for in the various dilutions. The total colonies were not taken, the results were—

Grain per gallon.	Colt test with MacConkey's solution	Sporogines test with sterile milk
1	-	+
2	-	+
3	-	+
4	-	+
5	-	-

Even in this bad effluent all the coli were killed, but not so the sporogines, some of these latter survived in the solution that contained 4 grains per gallon of lime.

8 Hence from these experiments it is obvious that 5 grains per gallon of good chloride of lime is more than ample for thorough disinfection. Still taking into consideration the very small cost of adding 5 grains per gallon to the effluent of the mills and the fact that a very large margin for error should be left because the whole process would have to be left in the hands of a native sweeper, I would not recommend using less than 5 grains per gallon. But in any place where more or less skilled supervision could be obtained over the chlorinating process and over the management of the whole installation so as to ensure a good effluent, I consider that one grain per gallon of chloride of lime, yielding over 30 per cent of available chlorine, mixed in the most approved method would probably be sufficient. This is an important conclusion, for it means that a rough-

and ready process which was at first advocated only for small quantities of effluent has, with scientific working, a much wider sphere of usefulness.

9 Let us now consider what is the approved method of adding chloride of lime to a liquid.

Many experiments have been tried both by Mr Tice and by myself in order to find out how the lime could be best added to the effluent, but all failed or possessed some serious disadvantage. Thus the first apparatus designed by Mr Tice gave great promise and certainly sterilized the effluent, but the life of the apparatus was only three weeks or a month. Other arrangements were tried, some worked perfectly as long as the lime was dry and powdery, but as soon as it got the least bit damp and caked, difficulties arose. But there is no object in detailing our failure. It soon became apparent that the only way which the sterilizing action of lime could be satisfactorily used was by making a solution of known strength of the material in water and mixing the fluid with the effluent. This method does away with all mechanical arrangements. It is simple to carry out and efficient. The apparatus used by me consists of a strong iron drum capable of holding anything from 10 to 20 gallons, into this a good iron $\frac{1}{2}$ " or $\frac{3}{4}$ " stop cock is fitted about 6" from the bottom and a good tight fitting lid is also provided. Into this vessel a known amount of chloride of lime is placed, the lumps being carefully crushed. The vessel is filled up with water and stirred diligently for a few minutes. It is then allowed to stand, the lime sinks to the bottom, and a clear greenish fluid, rich in hypochlorites and free chlorine remains. This can be run out into the tank or drain by opening the cock. It will now be apparent why the tap should not be at the lowest point in the vessel. If it were so placed, it would rapidly become blocked with the lime that settles at the bottom. Every day or every second day before recharging, the residual lime should be cleared out. One of the advantages of this method is the fact that the lime itself is not allowed to mix with the effluent. Consequently, firstly, it will not then pass into the river where it might be a nuisance in time, and, secondly, the tendency to throw down a sludge that lime possesses is obviated.

The receptacle should be very well made of steel or galvanized zinc or, better still, wood. In order to protect the metal from the corroding action of the hypochlorite, it should be either tarred within and without or carefully painted with three or four coats of good paint. It is also advisable to have a scale of the gallons marked on the inside to facilitate easy measurement. Even with these precautions, I am afraid, the life of the apparatus will not be very long. They are, however, cheap to replace.

10 The actual method of use of this reservoir of disinfectant fluid must depend on whether the flow of effluent is a continuous one, as it is from continuous filters or if intermittent as from contact beds. In the former case I recommend the following simple method of adding the chlorinating fluid so as to obtain adequate mixing of the sterilizing fluid with the effluent.

The drawing given is too simple to require lengthy description. A further advantage of this system is that there is always a good volume of disinfecting fluid in the tank. By constructing the overflow pipe at the top of the tank no fall is lost—this is a very decided advantage in Bengal.

In the case of the intermittent discharge from contact beds a tank must be provided into which the effluent and the hypochlorite fluid must be run. The tank must obviously have sufficient capacity to hold the fluid contents of a single contact bed. This capacity should be ascertained and a proportionate part of the lime liquid added.

11 Now, as it is proposed to utilize the liquor of chloride of lime, two points require investigation—

(i) Is the solution sufficiently stable to be of use, and (ii) What is the best strength to work with?

An aqueous solution of oxychlorites, hypochlorites and free chlorine is not usually looked upon as a very stable mixture. Hence, if this method is to be satisfactory, it becomes necessary to investigate carefully how rapidly the falling off in the available chlorine takes place, and what are the conditions most favourable for this deterioration. The means adopted in investigating the matter were as follows: several mixtures of chloride of lime and water were made of various strengths, the amount of available chlorine was estimated at once. These solutions were then placed in various positions, some in the sun, some in almirahs, etc., and the available chlorine was estimated from time to time and the falling off noted.

The method of estimating the available chlorine is the one used in Berlin, and is an improvement on the old method. To 100 c.c. (or a dilution) of the lime liquor is added 10 c.c. of a 10 per cent solution of pure potassium iodide, and 10 c.c. of a 50 per cent solution of glacial acetic acid. (The use of acetic acid constitutes the difference between the old and the new method. Hydrochloric and sulphuric acid may split up chlorates, acetic acid will not, hence the results with the latter are more accurate though slightly lower than with the mineral acids.) The free iodine is then titrated with a solution of thiosulphate of known strength. A convenient strength is 1 c.c. of this representing 3 l. of chlorine. The thiosulphate solution must be corrected with a solution of permanganate of potash from time to time to see that there is no deterioration.

12 The details of the experiments are given below—

Experiment I—One litre of a solution of chloride of lime equivalent to five grains per gallon, was put in the sun standing on a white China plate. The lime contained 21.5 per cent of available chlorine. At the end of one hour, practically all the available chlorine had disappeared, less than one drop of this solution discharged the blue colour of iodide and starch. A solution of the same strength kept in the laboratory showed no falling off in one hour.

Experiment II—About two litres of the stock solution used for adding to the effluents and containing 0.143 grain of lime (yielding 21.5 per cent of available chlorine) in 5 c.c. of water was kept in a flask without a cork in a glass almirah in the laboratory. It gave no appreciable falling off in available chlorine in four days, estimations were made daily, 61.6 milligrams of chlorine in 100 c.c. found present.

(b) Three flasks of same solution, each containing 100 c.c. were put out in the sun standing on a white tile, solution yielded 61.6 milligrams of chlorine in 100 c.c. at commencement—

After 1 hour sunlight	36.3 milligrams of chlorine found loss	41 per cent
After 2 hours sunlight	7.9 milligrams of chlorine found loss	87.1 "
After 3 hours sunlight	2.2 milligrams of chlorine found loss	96.4 "

Experiment III—A solution of six ounces per gallon of chloride of lime made and divided into two parts—

(a) About two litres placed in a shallow basin giving a maximum of surface to the liquid in a dully lighted godown.

(b) About two litres placed in a similar white basin in the sun.

Time of estimate	A (Shade)		B (Sun)	
	Milligram Cl in 100 c.c.	Per centage loss	Milligram Cl in 100 c.c.	Per centage loss
8 A.M.	850	Per cent.	850	6.25
10 "	824		797	9.3
12 noon	837		771	11.8
2 P.M.	831	1.5	750	16.1
4 "	831	2.25	713	17.3
8 A.M. next day	823	3.2	703	

Experiment IV—Five gallons of a solution containing 12 ounces per gallon was made up in a strong iron vessel possessing a good fitting lid. This was put on the roof in the sun. The solution showed no appreciable falling off in available chlorine on first and second days and less than 1 per cent on the third day, and no more on the fourth. The receptacle stood in a May sun and the temperature of the liquor was 38° centigrade.

Experiment V—One litre of a solution yielding 774 milligrams of chlorine per 100 c.c. stood in a bath of boiling water for one hour, the available chlorine did not fall off during that time.

13 The results of these experiments show clearly that—

(i) Sunlight is a very powerful factor in bringing about the rearrangement of the atoms in such substances as hypochlorites and oxychlorites causing them to form stable salts, which in the instance are chlorates and are useless as germicides.

(ii) That the action goes on in inverse ratio to the strength of the solution.

This latter point is demonstrated by the foregoing experiments. In Experiment I, the whole of the available chlorine in one litre was oxidized in one hour, in Experiment II, 98 per cent of chlorine in 100 c.c. took three hours, and in Experiment III, 16 per cent of the available chlorine was lost with an exposure lasting all day, the liquor being exposed in a shallow basin having a maximum of surface. On the other hand, they also show that even dilute solutions of chloride of lime do not change rapidly, provided they are not in the direct rays of the sun, the temperature does not increase the rapidity with which the oxidizing action takes place to any extent.

It will also be observed that in Experiment V, the conditions are exactly what they would be in actual working, viz, a fair quantity of a strong solution in a drum with the lid on, but not otherwise protected from the sun. The loss of chlorine under those conditions is trivial. Even if the lid was left off by a careless sweeper, Experiment III (b) shows that the loss in activity as a germicide would not be sufficient to effect the sterilization of the effluent, if the equivalent 5 grains per gallon of chloride of lime is added.

Therefore we may conclude that with the simple precautions of keeping a lid on the receptacle and making the solution a strong one, this method of adding the liquor of chloride of lime is both easy to carry out and free from any chance of failure.

14 The strength of the solution which I recommend for daily use at the latrine is 12 oz. of chloride of lime per gallon, of this one gallon is required for a 1,000 gallons of effluent. This solution is particularly useful if the effluent is intermittent as in an installation provided with contact beds. But if a constant flow is required, a solution of half the strength is rather better, as it is easier to adjust the cock to give the requisite amount per hour in this strength.

15 There is one other important point that is brought out by Experiment I, viz, that there is no fear of altering the natural conditions of the Hughli by the addition of such small quantities of hypochlorite liquor, for in a very short time this will be oxidized to inert chlorates by the action of the sun. This conclusion is also supported by some experiments carried out by Dr. Fowler and myself. A large quantity (some 30 lb.) of chloride of lime was put into the drain of a latrine and allowed to pass into the river immediately, a series of samples were taken at varying distance from the drainage outfall in the river. On examining these samples the chloride could not be traced in the river farther than about 30 yards from the outfall. Thirty pounds of chloride of lime is four or five days' supply under ordinary circumstances. Therefore there are no grounds for the belief that the chloride of lime added in the quantities recommended will poison the water or kill the fish.

16 Since writing the last note on this subject, some experiments have been carried out on the rate of deterior-

ation of chloride of lime in this country. A large bucket of the powder was kept in a cool dry godown with a good lid on the vessel. The available chlorine was estimated from time to time.

On 9th April the lime was obtained from a steel drum newly imported, and yielded 31 per cent available chlorine.

On 18th April it still yielded 20.4 per cent of available chlorine.

On May 1st it still yielded 27.1 per cent of available chlorine.

On May 13th it still yielded 23.3 per cent of available chlorine.

Hence it will be apparent that with these simple precautions the chloride of lime was still good over a month after opening. It is advisable, however, to buy chloride of lime in hundredweight boxes and to keep the material when the box is opened in a good solid receptacle with a good, fitting lid in a dry godown.

Conclusions —

(i) That 5 grains per gallon of chloride of lime is ample to sterilize a bad effluent, and that this amount leaves a good margin for erratic working.

(ii) That 1 grain per gallon of chloride of lime is sufficient to sterilize an effluent, provided the lime contains over 30 per cent available chlorine, that it is added in the best method, and that the effluent is a good one.

(iii) That sunlight is the powerful factor in splitting up the unstable compounds of oxygen, hydrogen and chlorine.

(iv) That a weak solution of chloride of lime is altered with extraordinary rapidity in the sunlight, the stronger the solution the less it is altered.

(v) That even weak solutions lose very little of their available chlorine if kept out of the sun.

(vi) That the best method of adding chloride of lime to an effluent is to make a mixture of the powder in water and run in the liquor. For this process it is necessary to make up a strong solution 6 or 12 oz. per gallon and keep the lid on the receptacle.

(vii) That a weak solution of chloride of lime so rapidly oxidizes in the sun that free chlorine cannot be found in the river a short distance from the drainage outfall.

(viii) That chloride of lime kept under suitable conditions does not deteriorate so rapidly as to render the process liable to failure.

W. WESLEY CLEMESHA, M.D., D.P.H.,

CAPT. I.M.S.,

Offg. Sanitary Commr., Bengal.

Current Literature.

SURGERY

The treatment of Hæmorrhoids—By Charles B. Kelsey, M.D. Years ago I practically abandoned the ligature for the clamp and cautery and since then have tried many new methods, but the clamp has always been satisfactory when the patient was willing to submit to operation, and other methods have been made shifts directed towards curing without operation.

My reasons for preferring the clamp to the ligature were simply that it gave less pain and a quicker convalescence, but I am now convinced that the pain in either operation depends on the skill of the operator and his technique. If the operator seizes the largest protruding pile with his forceps and puts the clamp on pile, skin and mucous membrane, and then burns off the mass with the cautery, stuffs the rectum with a tube and a plug of gauze, his patient must suffer.

The clamp and the cautery are the last step in the operation, which consists in dissecting the pile from its attachments towards its base as far as compatible with safety.

The dissected mass then only remains to be dealt with and may be cut off and tied, or clamped and cauterized.

Both these methods have been supplemented by suturing the mucosa over the wound. Occasionally this works very well. In 99 cases out of a hundred the suturing will fail, and three weeks is still the time necessary for granulation and healing after an operation for piles, though rest in bed is seldom necessary after the first few days.

Either the ligature or the clamp operation in selected cases in which no stretching of the sphincter is necessary may be performed under local anaesthesia and also at the doctor's office. I have often found a distinct advantage in using eucaine in old or very nervous or timid patients or in those who cannot take ether.

That a case of internal hæmorrhoids, bleeding and painful and demanding operation, but never protruding to any extent, can be satisfactorily operated upon under local anaesthesia either by ligature or clamp, I do not admit. The very first step is dilatation of the sphincters, and this can only be done satisfactorily under general anaesthesia.

The exploiting of simple water as a local anaesthetic does not appeal to me. The practical advantage of injecting an ounce of water, when the same effect can be safely obtained by ten drops of a weak solution of eucaine are not manifest, and the disadvantages are obvious.

The Whitehead operation or "American" operation never appealed to me, and I have never been willing to perform them. They have run their course and lapsed into history, but their evil results have not. Cases of stricture with ulceration or erosion and even erosion of the mucosa began to appear within a few months of the introduction of these methods. The methods never had any advantage over the ligature or clamp and were based on the false premise that these were not radical cures and that something more extensive was necessary.

As regards treatment by injection it fell into disrepute on account of its dangers, which are local abscesses with possible lymphangitis and ulcerations, but occasionally there was extensive suppuration in the pelvic tissues with a fatal result.

Having abandoned the injection treatment, I searched for some method which would obtain a cure without general anaesthesia or confinement to the house.

For years, in clamp and cautery operations, after using the clamp in two or three spots, I used to treat any small remaining tumours by puncturing into them with the tip of a Paquelin's cautery, thus destroying them without the risk of too great a contraction.

This is similar to a French method and is known as punctate cauterization; later a galvanocautery was used as being more convenient.

The use of the constant or uninterrupted current or so-called method of curing hæmorrhoids by "absorption by electricity" is utterly senseless. There is no "electrical absorption" or electrolysis in my method; it is simply punctate cauterization of an anaesthetised pile, and the object is to cause destruction and cicatrization.

The technique, when the tumour can be made to protrude, is very simple, in other cases often exceedingly difficult, for a speculum must be held with one hand and the eucaine and cautery applied with the other.

If a hæmorrhoid can be brought down and seized with forceps it can be tied off, but one which cannot be brought down cannot be properly dealt with without dilation of the sphincters, and it is impossible to do this properly under local anaesthesia. The speculum used is the one usually sold under my name, an ordinary hypodermic and the platinum points of the cautery fine.

The eucaine being injected, the platinum point heated to the point of redness is plunged into the tumour. One or two applications are enough at one time and should not be made oftener than once or twice a week.

After two or three applications, if pain is complained of, treatment is stopped for a week.

The patient is not expected to be confined to his house. The permanency of the results has been satisfactory ten years having elapsed without return of patients.

I have been slow in publishing this method for I am convinced if it becomes popular there will be a chapter of accidents arising from its use in unskilled hands. It is a method used for curing a timid sufferer, who will not permit of general anaesthesia and the knife.

Lewis, H. Adler Tr., M.D.—Radical cure of external hæmorrhoids can be effected by excision, simple incision or excision and suture.

Excision is generally employed when the patient is seen in the acute stage. The hair is not shaven, for when growing again, the patient feels as if the vicinity of the anus had been converted into a pin cushion.

The pile is anaesthetised by cocaine, eucaine or sterile water grasped with forceps and then rapidly removed with scissors curved on the flat. Bleeding of any importance is rare and is checked by packing with cotton; finally, the wound is plugged with gauze, a ten grain iodoform suppository introduced into the rectum and a gauze dressing applied. If much pain follows, a covered hot water bag is applied. The original gauze plug removed after 48 hours and 25 per cent ichthyol ointment applied. The majority of cases will be healed after two weeks. The only complication that may occur is the union of the skin edges before the deeper parts with a resulting superficial fistula.

Simple incision consists of transfixing the base of the tumour with a sharp curved bistoury cutting outwards after treatment is in excision; the main disadvantage is that the skin left may subsequently inflame or be filled with blood.

Excision with primary suture has been discarded, because the suture tracks are apt to become infected, and the constriction they produce causes annoyance to the patient.

Operative treatment of internal hæmorrhoids. The capillary pile is treated by the electrocautery superficially applied. Another method is the application of fuming nitric acid, the pile is made to protrude into a speculum thoroughly dried and the acid then applied. Caution is necessary to prevent the acid reaching unaffected parts, this may be prevented by smearing them with vaseline or glycerine.

One application usually stops the bleeding, but two or three at intervals of three to seven days are necessary for complete cure. The following methods are used for internal hæmorrhoids. Crushing an old method, revived on the advent of the angiotrite for a short time. The pile should be crushed longitudinally, the main danger is that of hæmorrhage. Divulsion performed under nitrous oxide gas and oxygen often exerts a beneficial effect, when the piles are strangulated and the patient refuses a more radical treatment.

Divulsion is an essential preliminary step to treatment by the Martin injection method.

Excision and suturing the wound, there are various modifications of this method, the principal is the excision of the pile and union of the wound by buried sutures.

Sutures within the bowel are apt to become infected at their point of entrance.

J. R. Pennington's operation of enucleation is performed as follows—the rectum is irrigated and each anal quadrant grasped at the cutaneous junction by T forceps. The anus is thus everted and the piles protrude. The redundant tissues consisting of one half or a third of the hæmorrhoidal node should be removed.

Next, all the angiomatous tissue is removed and the walls collapse. Each quadrant is treated in succession, spurting vessels are twisted or a ligature applied. The T forceps are then removed, and external tumours and tabs of skin removed, avoiding the mucocutaneous junction. A rubber covered tampon is introduced into the rectum and removed after 48 hours and a cathartic is given. This is not an operation which can be performed by any one without giving rise in many cases to a prolonged convalescence and possibly a stricture.

Submucous ligature, here the sphincters are dilated and a large semicircular needle is passed subcutaneously

from the cutaneous margin to the upper border of the pile bearing area and is then returned emerging at the point of entrance. The ligature is tied, they may vary in number and are placed at intervals of $\frac{1}{2}$ —1 inch apart. It is claimed for this method that no tissue is sacrificed, no hemorrhage or pain, and practically no detention from business. Adler however thinks that the pain and inconvenience are such that the author of the method must have abandoned it by now.

Injection of caustic and astringent solutions. Either strong solutions causing necrosis of the entire hemorrhoid or weak solutions are used, producing inflammation, induration followed by shrinking and atrophy of the piles.

Adler thinks this a most dangerous procedure, pain follows the injection, and if at the moment of the injection the patient moves, the fluid enters the deeper structures with often disastrous consequences.

Whitehead's operation. This consists practically of an amputation of the pile bearing area, various modifications have been suggested to render easier the performance of a tedious, difficult and bloody operation. Adler has never performed it since the cases coming under his observation have not justified the risks attending its performance.

Ligature is not the procedure which has merited his chief support. He performs it in the ordinary way.

The clamp and cautery are preferred above all other methods because there is less pain, recovery is most rapid, and retention of urine, etc., after operation is less frequent.

The sphincter is carefully stretched taking two to three minutes over the process. All the piles are then isolated with forceps. The pile to be operated on is pulled outside, divided at the mucocutaneous junction and the clamp applied in the long axis and the surrounding structures protected by wet gauze, the pile is then cut off and the Paquelin cautery at a dull red heat applied to the stump. Diet is not a matter of any special importance after the day following the operation. The patient is given a purge on the third day, followed by an enema of 6 oz of linseed oil. After the first bowel movement the patient may get out of bed and in ten days can generally resume his usual vocation.

Treatment of hæmorrhoids by submucous ligature.—B. M. Ricketts, M.D.

The sphincters are dilated with the fingers and the rectum is irrigated with hot water. A large needle curved to rather more than a semicircle and threaded with kangaroo tendon or catgut is made to enter the mucocutaneous border round each hæmorrhoid until one half of the circle has been described, when it is allowed to make its exit. It is then introduced at the point of exit and passed submucously to describe a circle and make its exit at the point of first entrance.

Two or more ligatures are applied and then tied, considerable tumefaction may ensue, which may be overcome by puncture with the knife. Several of these swellings can be pushed above the sphincter, but it is necessary to allow the great majority to care for themselves. No further attention is given the ligature. The parts are frequently irrigated with hot water.

Advantages.—It is simple and radical and can be done quickly without hemorrhage or loss of function of the sphincter. If the hæmorrhoids are associated with prolapse this method is excellent because the application of the ligatures will take up the redundancy of the tissues.

Disadvantages.—Secondary hæmorrhage has occurred, but this complication has often followed the use of the clamp and cautery. Slough may occur if only the mucous membrane is surrounded by the ligature. Abscess and phlebitis have both been really observed. Pain may be mild or severe depending upon the amount of tissue involved and temperament of the patient.

S. G. Gant, M.D., LL.D.—Practically all uncomplicated cases of internal hæmorrhoids can be thoroughly

and painlessly operated upon by means of sterile water anesthesia at the office, or home of the patient. Formerly when the writer employed general anesthesia he preferred the clamp and cautery method, they can also be employed under local anesthesia, but the glowing non-frightening the patient and the cauterized surfaces are liable to be pulled apart and a serious hæmorrhage started unless the patient is kept in bed.

Whitehead's operation is difficult, bloody and is often accompanied and followed by unpleasant accidents and sequelæ and is not justified under local anesthesia and rarely under general anesthesia.

The excision of piles by linear incisions can be done under local anesthesia.

Ligature.—This is the operation of choice when local anesthesia is employed. The patient by straining protrudes the hæmorrhoids and he is then placed on the table in the Sims posture. If the piles cannot be made to protrude they are brought into view by a speculum. Each pile has sufficient water injected into it to cause its entire surface to turn white and the operation can then be proceeded with. The writer most heartily commends this method of producing complete local anesthesia.

J. P. Tuttle, M.D.—The majority of cases suffering from hæmorrhoids are now treated without general anesthesia and many of them are radically operated upon in the office and sent home or to the hospital to rest for a day or two, when they can go about their business. It is necessary to distinguish between primary and secondary hæmorrhoids, the latter due to cirrhosis of the liver, etc., are rarely operated upon and only in cases of emergency, i.e., great hæmorrhage or strangulation.

Thrombotic hæmorrhoids are treated by incision after the preliminary injection of cocaine or eucaine, clots removed with forceps and the wound packed with gauze soaked in adrenalin.

Connective tissue hæmorrhoids are removed when a source of annoyance to the patient.

Internal hæmorrhoids are divided into capillary and varicose. The chief objection heretofore to the use of local anesthesia in these cases has been the difficulty of dilating the sphincters without great pain. Recently however we have discovered that the injection of 20—30 minims of a half per cent solution of cocaine into the sphincter muscles at the point of entrance of the lesser sphincterian nerves (Morestin), just on either side of the posterior commissure, will enable us to dilate this muscle with comparatively no pain, as much as is necessary for practical purposes.

Capillary hæmorrhoids can all be operated upon in the office and also simple cases of prolapsing hæmorrhoids when there are only one or two tumours, but these cases should be kept quiet for 24—48 hours after the operation.

In more severe cases the operation should be done at home or in hospital to lessen the risk of secondary hæmorrhage.

In the capillary type the sphincter being injected with cocaine, a good sized speculum is introduced, the bleeding areas located and anesthetized with cocaine and the galvano cautery applied, burning down through the submucosa to cut off the blood supply. Bicarbonate of soda is insufflated to relieve the pain. The bowels are moved on the third day.

T. C. Martin, M.D.—The choice of an operation for the removal of hæmorrhoids varies, the ligation operation is an antiquity undeserving a place except in the archives of proctology. The clamp and cautery method has been used for fifty years, the clamp serves to secure the growth and the cauterization to coagulate the lymph, plug the blood vessels and prevent hæmorrhage. In the popular Henry Smith clamp, the clamp is so broad that it is necessary to drag the growth outside the anus for operation, and the resulting wound

remains fixed external to the anatomic situation and is followed by a weeping anus, or if the wound be returned, the lips are detached and hæmorrhage may follow.

In Whitehead's operation if the skin is removed below the sphincter a condition of weeping anus arises.

Pennington's operation consists in simply cutting off the pile and to control hæmorrhage the rectum is packed, my conjectures are that the wound's edges are widely separated and by pressure of the plug they may become fixed and the ensuing granulating surface require much time for healing. Another point is that the muscular tissue will relax under pressure of the plug, and though primary hæmorrhage is checked yet secondary hæmorrhage may easily occur.

The author's operation consists of—general anaesthesia, the patient being in the dorsal position, thighs flexed and hips lower than the shoulders. A bivalve speculum is introduced, forceps are applied to the hæmorrhoid and the pedicle clamped and the pile cut off, after the cautery is applied intermittently and the pedicle sutured with catgut with a button-hole stitch. A six inch strand of catgut is attached to its upper end. When all the piles have been treated, the speculum is removed and also the clamps.

Without anaesthesia a special conical clamp is used, preparatory treatment consists in the gradual daily dilation of the sphincter until the clamp can be introduced without pain. The patient is placed in Sim's posture and the piles localised with the anoscope, injected with eucaine and grasped with forceps, the clamp applied and the tumour cut off, the pedicle may either be sutured or just touched with the cautery. In the after-treatment the patient is not allowed to lie on his back, the long catgut stitch left is in case of secondary hæmorrhage when, if it occurs, the pedicle can be pulled outside and an artery forcep applied until the arrival of further help. (*The Therapeutic Gazette* March 1906)

What strikes one perhaps most forcibly, in reading the opinions expressed by these different authorities is their great variance as to the right operation to be performed, i.e., one man saying the ligature is the only correct method, another stigmatising it as prehistoric, and similarly with the other procedures described. The only conclusion that can be drawn is that any one operation is not suited for every case. The second point is the great desire to perform the operation under local anaesthesia and get the patient back to his work, this is perhaps another example of the American tendency to "hustle." Many cases of hæmorrhoids do indeed take ether or chloroform badly but so do cases of varicose veins and varicocele, but it has not been generally suggested that these latter operations should be done under local anaesthesia, and with a good anaesthetist this difficulty can generally be overcome. The method of injection of the nerves of the sphincter as described by Tuttle strikes one as being a distinct advance. Cases of hæmorrhoids with only one or two definite tumours can be easily treated under local anaesthesia, and the result will probably be satisfactory, but when there are many, several sittings have to be undergone, and the difference in time is probably rather longer than if the operation had been completely finished at one sitting. This method is reminiscent of what used to happen to a patient with nasal polypi, who had one polypus solemnly removed week by week, until Sir Mitchell Banks suggested their total removal under chloroform.

The opinions as regards the use of the clamp and cautery seem fairly equally balanced, the advocates of the latter laying chief stress on the lesser pain produced by this method. Both methods, however, are somewhat reminiscent of an age of ruder surgery.

Another point is the little mention of Whitehead's operation and that chiefly of condemnation, one authority saying he has never performed it, and another stating if the anal skin is removed a weeping anus results, these criticisms can scarcely be taken seriously.

It is well known that in cases with a complete ring of hæmorrhoids, more particularly if associated with prolapse, Whitehead's operation gives most satisfactory results. Undoubtedly unfortunate results do follow occasionally, but so they do after any operation. Another criticism is that the operation is difficult, that without doubt is so, but it scarcely appears to be a sufficient reason for condemning an operation, for if carried to a logical conclusion, how many operations would have to be discarded?

E O T

Correspondence.

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—One often hears the merits of quinine discussed in regard to its effects when administered by the mouth and hypodermically. There seems to be growing a strong opinion that the hypodermic use of quinine is attended by more lasting beneficial effects, than is its use when given by the mouth. I am one of those who hold this opinion and have attributed the beneficial effects to the fact the quinine when hypodermically injected, remains long in the tissues, maintaining an anti-malarial influence for many weeks as it is being slowly distributed throughout the body from the seat of the injection. That this is so is hardly sufficiently realised. When quinine is given by the mouth it quietly produces its definite head symptoms &c, and it is not found in the urine after a very few days, that is, after a very short time its prophylactic influence ceases, as there is no longer any of it present in the tissues. Not so with quinine given hypodermically—seldom or never does the patient experience unpleasant head symptoms while owing to slow absorption and elimination a quantity of it remains long in the tissues and is found in the urine after many weeks. An illustration of this has just come under my notice. It was the case of a little European girl of four years, whom I was asked to see in consultation in June last. On 20th and 22nd of that month her medical adviser had given her a hypodermic injection of ten grains of the Bisulphate of quinine dissolved in water 1 gr. to 4 minims. That is the child had received two injections of ten grains each at an interval of 48 hrs. Quinine is still to be found in her urine, the specimen just examined on 13th instant, 178 c.c., containing 0.22 grains of quinine (14.24 mgms). The child is quite well and had no ill effects from the heroic dosage. This would seem to indicate also that the hypodermic method is a safe method, the slow absorption preventing all ill general effects. It appears to me that this experience might be applied practically in the case of persons going temporarily into malarious places. 20 grains might be injected safely into the flanks and the individual might count on having, for the next month at least, enough quinine present in his blood to keep him safe—without the annoyance of the head symptoms, which so commonly result from a large dose given by the mouth.

Yours, &c,
JOHN SMYTHE,
Lt Col, I M S

To the Editor of "THE INDIAN MEDICAL GAZETTE."

SIR,—I can confirm Capt. Connor's observation as to the occurrence of Yaws in Manipur. In the runs of 1900 or 1901 (in my record the date is not very legible) I met with two cases in two Kabwí Naga lads, brothers. Both showed a moderate number of small typical lesions some denuded of scales, some rupial, exactly like cases I saw later in Upper Assam. These were, however, the only two cases that came under my notice in over two years' service in the Manipur State.

In my experience syphilis appeared practically unknown amongst the hill tribes, it is at any rate exceedingly rare in comparison with its wide dissemination amongst Manipuris and immigrants.

Yours, &c,
CAMPBELL DYKES,
Capt, I M S

ETAWAH, U P, }
20th August 1906 }

To the Editor of "INDIAN MEDICAL GAZETTE"

DEAR SIR,—I beg to forward herewith the details of a curious case of what may be called "Hysterical Belch." I was called to the 74th Panjabí lines to see a Sepoy's wife who, I was told, was seriously ill.

On arriving at the hut, I found the woman lying in bed covered with some 4 or 5 blankets and making the most noisy belches, it has even been my lot to hear. So loud were they that one could plainly hear them at a distance of 50 yards from the house.

This I was told had been going on constantly every 10 seconds for the past 2 days and nights. I also discovered that she had not passed wind or motion for three days. There had been no vomiting. On examination I found that the patient's pulse, though somewhat fast, 110 to the minute, was of good quality. Abdomen was somewhat distended but quite soft and compressible. The epigastric region was perhaps somewhat more distended than other parts. No other signs or symptoms were to be made out. Expecting that there might be some obstruction of the bowel, my treatment was a large dose of castor oil followed later by an enema. This had not the slightest effect and the following day on again being called in, I found the patient still emitting the same noisy and disgusting eructations, and I was told she had continued doing so since my visit on the previous day. Pulse was slightly quicker, bowels had been well moved.

A happy thought then struck me that it might be a similar condition to one, I had seen in a young girl, aged 15, in the London Temperance Hospital under Dr Fenwick, and following up the same line of treatment I had seen him use, I administered the stomach tube threatening at the same time to use two tubes instead of one the following day if her condition had not improved. From that moment, she completely recovered.

I have every reason to believe it was an exactly similar case to that of Dr Fenwick's which I believe he described as Hysterical Belch produced by swallowing air and immediately bringing it up again with a loud report.

If you consider this case of sufficient interest, will you kindly publish it in one of your numbers of the "*Indian Medical Gazette*."

Yours faithfully,

74TH PUNJABIS, SAUGOR, } CHARLES J BRIERLEY,
29th August 1906 } Lieutenant, I M S

"SPONTANEOUS RUPTURE OF SPLEEN"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—May I crave your indulgence in allowing the following case a corner in your valued journal.

Karamchand, aged about 45 years, residing at Hardoi, who was addicted to drinking alcohol to excess and smoking charas, fell down unconscious in a lane while walking on the afternoon of 13th August 1906 and died immediately.

Result of *post mortem* examination is as follows—

External body was very much emaciated. Head, brain was congested, sinuses were engorged with blood. There was serious effusion in the ventricles of brain.

Lungs, congested but normal. Heart, pericardium much thickened and adherent in patches. Both chambers full of blood. Liver pale and anæmic and hardened, probably due to cirrhosis.

Spleen there was no mark of external injury on the part corresponding to the region of spleen. Abdominal cavity was full of serous blood. Spleen was ruptured, the tissue was so soft, friable and pulsatious that not an inch of the solid tissue could be taken out entire. It was lying in a thickened and stiff capsule which shewed as if it was a bag containing the pulsatious mass.

The stomach was thickened and congested. The veins were prominent and congested. These changes were more prominently marked at its cardiac end. Kidneys congested.

From the *post mortem* appearances there is no doubt that the patient was suffering from chronic alcoholism.

The reason for publishing this case is the rarity of spontaneous rupture of spleen even in alcoholic persons. In chronic alcoholism the morbid appearances are as a rule increase of fibrous tissue in the organs and hence cirrhosis of liver and congestion and enlargement of spleen, but in this case the spleen tissue was quite soft and friable. It had not undergone the lardaceous change for it had not the appearance of sago spleen as described in books, and generally lardaceous changes take place in the other organs if one organ is affected. The rupture was quite spontaneous, probably due to contraction of extraordinary muscles of respiration brought to head in a fall, for there was no history to suggest that the man was given a blow in the splenic region or that while falling down he hit himself against a hard substance in the splenic region. I should thank your readers very much if they have come across such cases in their practice.

Lastly my thanks are due to Dr Wazir Singh, Civil Surgeon, for allowing me to take notes of this case.

HARDOI, OUDH, } J P MODI, L.R.C.P. & S., F.L.F.P.S.C.,
20th August 1906 } Civil Assistant Surgeon

Service Notes.

THE Commander in Chief in India is pleased to make the following appointment—

Brigade Staff

Lieutenant Colonel D French Mullen, M.D., Indian Medical Service, to officiate as Principal Medical Officer, Suhind and Jullundur Brigades, vice Colonel H Hamilton, M.B., C.B., I.M.S., Indian Medical Service, granted leave out of India.

Information of the death of Maung Po Po, Hospital Assistant, No 253, 4th Grade, on the 25th June last, whilst in the execution of his duty, has been received by the Inspector General of Civil Hospitals with deep regret. He wishes to place on record the statement which accompanied the report of his death, as furnished by Major C E Williams, I.M.S., Health Officer, Rangoon, and with which he fully coincides.

"He has been employed on Plague duty in Rangoon for a greater part of the past twelve months, and had shown himself to be a very energetic, capable and trustworthy officer, whom it would be difficult to replace."

Captain H A Williams, M.B., I.M.S., assumed charge of special Plague duty with the Rangoon Municipality on the forenoon of the 18th July 1906.

Third Class Military Assistant Surgeon H J Willes made over, and Captain C M Mathews, I.M.S., received charge of the Civil Surgeoncy of Kungtung (Loimwe), Southern Shan States, on the afternoon of the 4th July 1906.

MAJORS TO BE LIEUTENANT COLONELS

Dated 1st April 1906

George James Hamilton Bell, M.B.

The King has also approved of the retirement from the service of the undermentioned officer.

Indian Medical Service

Major Joseph Orphine Pinto Dated 31st March 1906

Appointment of Specialist Medical Officers

Dr Rutherford, on Wednesday, July 25th, asked the Secretary of State for India. How many Indian Medical Service officers have been appointed as specialists under the Indian Army Order regarding specialists' appointments, in India, how many officers so appointed by the Director General of the Indian Medical Service have received the special remuneration authorised for such appointments, and how many are natives of India.

Mr Morley. I have no information as to what steps have been taken consequent on the publication of the India Army Order referred to by the hon member, but I will inquire.

Captain H H Knapp, M.D., I.M.S., assumed charge of his duties with the Port Health Department, Rangoon, on the forenoon of the 26th July 1906.

Major H Smith, I.M.S., made over charge of the duties of Superintendent of the Jullundur district jail, to Assistant Surgeon Kidar Nath Bhandari, on the forenoon of the 30th July 1906.

Captain W R Clark, I.M.S., made over charge of the duties of Superintendent of the Ambala District Jail, to Captain J Stephenson, I.M.S., on the afternoon of the 14th July 1906.

Assistant Surgeon Kidar Nath, Bhandari, in charge of the Civil Hospital, Jullundur, is appointed to officiate as Civil Surgeon of Jullundur, in addition to his own duties, with effect from the forenoon of the 30th of July 1906, vice Major H Smith, I.M.S., proceeded on leave.

ON return from the privilege leave of absence, Lieutenant-Colonel S Little, I.M.S., Civil Surgeon, resumed charge of his duties at Rawalpindi, on the forenoon of the 24th of July 1906, relieving Captain F A F Barnardo, I.M.S.

MAJOR H SMITH, I.M.S., Civil Surgeon, Jullundur, has obtained privilege leave of absence for one month, with effect from the forenoon of the 30th of July 1906.

MAJOR C MILNE, I.M.S., Civil Surgeon, Fyzabad, privilege leave for twenty one days, from the 5th September 1906.

THE services of Captain C J Robertson Milne, I.M.S., are replaced at the disposal of the Government of India in the Home Department, with effect from the afternoon of the 30th of June 1906.

LIEUTENANT COLONEL H. HENDLEY, M.D., I.M.S., Civil Surgeon, has been permitted by His Majesty's Secretary of State for India, to commute the period from the 15th of October 1903 to the 27th of May 1904 of the furlough granted to him in *Punjab Government Gazette* Notification No. 63, dated the 26th of January 1903, and extended by Notification No. 86, dated the 28th of January 1904, into "Study Leave."

CAPTAIN F. WALL, I.M.S., in medical charge of the 62nd Punjab, to hold civil medical charge of the Fyzabad district in addition to his military duties, *vice* Major C. Milne, I.M.S., granted leave.

THE services of Captain C. J. Robertson-Vilne, M.D., I.M.S. (Bengal), are replaced at the disposal of the Government of Bengal.

THE services of Captain W. S. J. Shaw, M.D., I.M.S., are placed temporarily at the disposal of the Government of the Punjab.

THE services of Captain C. A. Gourlay, M.B., I.M.S., are placed permanently at the disposal of the Government of Eastern Bengal and Assam.

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of Eastern Bengal and Assam—

Captain H. B. Steen, M.D., I.M.S.
Captain O. St. J. Moses, M.D., I.M.S.

THE services of Captain H. A. J. Gidney, F.R.C.S., I.M.S., are placed at the disposal of the Government of Eastern Bengal and Assam.

CAPTAIN H. B. STEEN, I.M.S., is appointed to officiate as Civil Surgeon, Lushai Hills.

CAPTAIN O. ST. J. MOSES, I.M.S., is appointed to officiate as Civil Surgeon, Coalgata district.

CAPTAIN H. A. J. GIDNEY, I.M.S., is appointed to officiate as Civil Surgeon, Dinajpur.

MAJOR H. S. WOOD, I.M.S., Civil Surgeon Eastern Bengal and Assam, is permitted to return to duty before expiry of leave.

MAJOR E. A. W. HALL, I.M.S., Civil Surgeon, Sylhet, is granted leave for one month, with effect from the 24th August 1906 or such subsequent date on which he may avail himself of it.

CAPTAIN T. H. DELANY, I.M.S., Civil Surgeon Eastern Bengal and Assam is granted an extension of six months' leave on medical certificate.

LIEUTENANT COLONEL WILLIAM ARTHUR MAWSON, I.M.S., Bengal, is permitted to retire from the service, subject to His Majesty's approval, with effect from the 14th July 1906.

CAPTAIN to be MAJOR, Charles Ross Pearce, M.B.

CAPTAIN G. J. HOUGHTON, R.A.M.C., in charge of the Station Hospital, Barrackpore, is appointed, with effect from the 16th July 1906, to have charge of the Civil Medical duties of that station in addition to his own duties, *vice* Lieutenant G. H. Richard, R.A.M.C.

CAPTAIN C. A. LANE, I.M.S., made over charge of the Purnea Jail to Captain L. Cook, I.M.S., on the afternoon of the 8th August 1906.

MR. H. E. WELLS, M.B., C.M., made over and Captain H. H. Knapp, M.D., I.M.S., assumed, executive and medical charge of the Magwe District Jail on the forenoon of the 6th August 1906.

INDIAN MEDICAL SERVICE

THE Commander in Chief in India has notified that the following officers of the Indian Medical Service have been

approved by the Director General Indian Medical Service, as specialists in the subjects noted against their names:

Capt. C. A. Sprawson	Eastern	Fevers
Lieut. F. N. White	"	"
" A. C. Ingram	Secunderabad	"
" J. H. Burgess	Eastern	Operative Surgery
" C. H. Biodinbb	"	"
" C. H. Barber	Northern	"
" A. F. Hamilton	Western	"
Major J. Bedie	Secunderabad	"
Capt. T. B. Kelly	Eastern	Ophthalmology
" S. H. L. Abbot	Northern	"
" F. S. C. Thompson	Western	"
Major A. E. Berry	Secunderabad	"
Capt. G. E. Charles	Eastern	Rhinology
" C. C. Murison	Western	Physiological Medicine (Mental Science)
" A. W. Overbeck	"	"
" W. Wright	Eastern	"
Major H. M. Earle	Northern	Midwifery and Gynecology
Capt. G. Tate	"	"
Lieut. J. Anderson	Western	"
Capt. W. D. A. Keys	"	"
Major M. A. Kei	Northern	Public Health
Capt. A. W. C. Young	"	"
Major C. M. Moore	Western	"
" G. W. Jenny	"	"
Capt. A. Spitteler	"	"
Major C. A. Johnston	Secunderabad	Public Health and Parasitology
Lieut. A. C. Ingram	"	Public Health
(also in fever)	"	"
Lieut. D. Steel	Eastern	Parasitology

NEW RULES FOR THE POSTING OF I. M. S. OFFICERS

During the last week important modifications of the rules relating to the posting of officers of the Indian Medical Service on their arrival in India, and to their subsequently obtaining civil employment have been issued, the effects of which will in time be far reaching, while it is to be feared they will not add to the popularity of the service. Before 1896 officers on leaving Netley were appointed to one of the Presidential lists—Bengal, Bombay, or Madras—choice being allowed in order of seniority, but since that date all officers have been borne on a common list; they are liable in cases of emergency to serve anywhere, but are ordinarily employed in the military command to which they were posted in accordance with the choice allowed to them on passing into the service. Some administrative difficulties have arisen entailing additional expense in connection with posting to regiments, transfers from military to civil employment and grant of leave, and have been accentuated by the liability of regiments to be moved in relief to any part of the country. An arrangement has therefore been sanctioned by the Secretary of State for India by which the Presidential and general lists of the Indian Medical Service will be amalgamated (thus, apparently, applying to those who entered before 1896) and officers will no longer be allowed to retain a lien on the military areas of their choice which they have hitherto possessed; they will, however, retain the right to employment in a civil capacity, should they be candidates for such employment within the civil areas for which they are at present eligible, and will also be eligible for promotion to administrative appointments at present open to them on the lists on which their names have hitherto been borne. From the date of the second examination of 1906 all officers will be liable for military employment in any part of India. As this amalgamation is designed to lessen the extent and frequency of moves in the military section of the service there appears to be no objection to the new order from that point of view. It is, however, also laid down that in future for the purposes of civil employment subject to the requirements of the service, and in accordance with their positions on the list as determined by the combined results of the preliminary and final examinations in London a choice will be allowed of the following civil areas: (1) Madras, to include Madras and Burmah, (2) Bombay, to include Bombay and Aden, (3) Upper Provinces, to include Agra and Oude, the Punjab, and the Central Provinces, (4) Lower Provinces, to include Bengal and Eastern Bengal and Assam. In civil employment officers will ordinarily be employed in the areas to which they have been allotted but will in emergency be liable to serve in any part of India. They will, on first arriving in India be posted as far as possible to military commands

of divisions within the civil areas of their choice, to enable them to become acquainted from the first with the language and people of the part of India in which, in many cases, they will ultimately serve in civil capacities. After arriving in India those desirous of civil employment will apply to the Director General to have their names registered for such employment within the areas to which they have been allotted.

Such are the new rules, which have evidently been carefully worked out to meet the requirements of the State. They clearly have their good points, but unfortunately they considerably restrict the present privileges as to choice of provinces for civil work (which covers about nine tenths of the service of two thirds of the members), for it will no longer be possible to apply for a single province and wait to be appointed to it in due time, but only for a group of provinces which may present very different prospects. For such officers as have local influence this may not matter much, but for their less fortunate brethren it will lead to great uncertainty and frequently to bitter and lifelong disappointment. The object of the new rules is quite apparent for the opinion expressed in these columns when the recent increase of pay was sanctioned, namely, that the mistake of retaining the old custom of reducing the grade pay of junior officers by 50 rupees a month on entering the civil department would lead to difficulties in filling the civil ranks of some parts of India, has already proved true, as the new province of Eastern Bengal and Assam has recently had to be recruited by taking away officers from Bengal who had actually joined Bengal after the Eastern districts had been separated, the knowledge of this possibility of transfer is retaining officers from accepting civil work in Bengal proper, as well as in Assam. In fact, under the new scheme it seems probable that only men at the bottom of the list will accept military or civil service in Bengal and Assam and the foremost position which the former province has hitherto held will be reversed unless some further attraction such as a local allowance, is held out, or the pay of the civil branch is considerably raised, to make it in some degree proportionate to the much greater amount of work and responsibility as compared with military service.—*B M Journal*

THE services of Captain W S J Shaw, M B, I M S, are placed temporarily at the disposal of the Government of the Punjab.

LIEUTENANT R T COLLINS, R A M C, to hold civil medical charge of Roorkee, in addition to his military duties, with effect from the 1st August 1906, *vice* Lieutenant Colonel A W Dawson, I M S.

MAJOR G M O SMITH, I M S, officiating Civil Surgeon, Gurdaspur, obtained privilege leave for three months combined with furlough out of India for 10 months, and study leave for six months under the regulations regarding the grant of study leave to officers of the Indian Medical Service, with effect from the 29th of March 1906.

CAPTAIN V H ROBERTS, I M S, whose services have been placed at the disposal of the Punjab Government, reported his arrival at Lahore on the forenoon of the 13th July 1906, and was appointed Assistant Plague Medical Officer, Lahore, from the same date.

THE services of Captain H J K Bamfield, I M S, were replaced at the disposal of the Government of India, in the Home Department, with effect from the afternoon of the 23rd July 1906.

ON transfer from Lahore Captain V H Roberts, I M S, was appointed Assistant Plague Medical Officer, Delhi, and assumed charge of his duties on the forenoon of the 30th of July 1906.

LIEUTENANT W O GRAY, I M S, assumed charge of the Civil Medical duties of the Kohat District on the forenoon of the 28th of July 1906, relieving Captain E Bisset, I M S.

CAPTAIN E BISSET, I M S, made over charge of the duties of Superintendent, Kohat Jail, to Muhammad Sarfaraz Khan, Extra Assistant Commissioner, on the forenoon of the 28th July 1906.

CAPTAIN A MOORHEAD, I M S, assumed charge of the Civil Medical duties of the Dera Ismail Khan District on the afternoon of the 28th of July 1906, relieving Captain E C Taylor, I M S.

CAPTAIN E C TAYLOR, I M S, made over charge of the duties of Superintendent of the Dera Ismail Khan Jail to Captain A Moorhead, I M S, on the afternoon of the 28th July 1906.

THE undermentioned officers have been granted, by His Majesty's Secretary of State for India, extension of leave—

Lieutenant Colonel J Sykes, I M S, eight days' furlough.
Major S H Henderson, I M S, was on study leave from 15th January 1906 to 21st March 1906, and from 7th June 1906 to 7th July 1906.

MAJOR V G DRAKE BROCKMAN, I M S, Agency Surgeon, Eastern Rajputana States, is granted privilege leave for one month, with effect from the 3rd September 1906, on the subsequent date on which he may be permitted to avail himself of the leave.

THE services of Captain T Hunter, M B, I M S, are placed permanently at the disposal of the Government of the United Provinces.

THE undermentioned officers have been permitted by the Secretary of State to retire from the service subject to His Majesty's approval, with effect from the dates specified—

Lieutenant Colonel Laurence Austine Weddell, M B, C B, C I E, Indian Medical Service, Bengal,—21st October 1906.

Lieutenant Colonel David Prain, M B, C I E, Indian Medical Service, Bengal,—31st July 1906.

Major J Mulvaney, I M S, Superintendent of the Presidency Jail, Calcutta, is allowed leave for one month, with effect from the 3rd September 1906.

CAPTAIN H B STEEN, M D, I M S, made over charge of the Dinajpur Jail to Captain H A J Gidney, I M S, on the afternoon of the 1st August 1906.

IN modification of the Home Department Notification No 71, dated the 2nd February 1894, it is hereby notified that the appointment of Honorary Assistant Surgeon to the Viceroy will in future terminate on the departure from India of the Viceroy who makes it, unless it ceases earlier on the holder's retirement from the service.

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of Madras—

Major J L Macrae, M B, I M S (Madras)
Captain P L O'Neill, I M S
Captain W R J Scroggie, I M S
Captain F C Rogers, I M S

THE services of Captain W A Justice, M B, I M S, are placed permanently at the disposal of the Government of Madras.

THE services of Captain V H Roberts, I M S, are placed temporarily at the disposal of the Government of the Punjab, for employment on plague duty, with effect from the 13th July 1906.

THE services of Captain H J K Bamfield, I M S (Bengal), are replaced at the disposal of His Excellency the Commander in Chief in India.

CONSEQUENT on the death, on 20th May 1906, of Major H W Elphick, I M S, Civil Surgeon, Captain T Hunter, I M S, Civil Surgeon, 2nd class, sub *pro tem*, to be confirmed.

Languages—Examinations—At examination held at the station, the following officer was successful—

CAPTAIN G D FRANKLIN, I M S, at Shillong in Khaskura (obligatory).

CAPTAIN W M PEARSON, I M S, Officiating Civil Surgeon, Gonda, is placed on special duty in the Sanitary Department, from the 1st to the 10th September 1906, inclusive.

CIVIL ASSISTANT SURGEON PURNA CHANDRA MUKERJI, attached to the Sadr Dispensary Gonda, to hold civil medical charge of that district, in addition to his own duties, *vice* Captain W M Pearson, I.M.S., on special duty

IN continuation of Notification No 495, dated the 9th of May 1906, Major G F W Ewens, I.M.S., Superintendent, Punjab Lunatic Asylum, has been further permitted by His Majesty's Secretary of State for India to convert the period from the 24th of April to the 30th of June 1906, of the furlough granted to him into "Study Leave"

MAJOR E V HUGO, I.M.S., made over charge of the duties of the Superintendent of Ferozepore District Jail, to Assistant Surgeon H C Ghosh, on the forenoon of the 15th August 1906

MAJOR A W T BUIST, I.M.S., made over charge of the duties of Superintendent, District Jail, Multan, to Malik Muhammad Hayat Khan, Extra Assistant Commissioner, on the forenoon of the 20th August 1906

CAPTAIN C DYKES, I.M.S., Officiating Civil Surgeon, Etawah, privilege leave for one month, from 10th September 1906

COLONEL F W TREVOR, M.B., Royal Army Medical Corps, to officiate as Principal Medical Officer, Western Command, *vice* Surgeon General W L Gubbins, M.B., C.B., M.V.O., Army Medical Staff, transferred to the Eastern Command, with effect from the 18th April 1906

SURGEON GENERAL F W TREVOR, M.B., Army Medical Staff, on promotion to that rank, is confirmed as Principal Medical Officer, Western Command, with effect from the 15th July 1906

SURGEON GENERAL W B SLAUGHTER, Army Medical Staff, to be Principal Medical Officer, Eastern Command, *vice* Surgeon General W L Gubbins, M.B., C.B., M.V.O., Army Medical Staff, appointed Principal Medical Officer, His Majesty's Forces in India, with effect from the 1st August 1906

Captain to be Major

VIVIAN BOSE BENNETT, M.B., F.R.C.S., I.M.S.

ON return from the privilege leave, of absence granted to him, Captain H Ross, I.M.S., Assistant Plague Medical Officer, resumed charge of his duties at Ambala, on the forenoon of the 17th of July 1906

LIEUTENANT COLONEL I I PRATT, I.M.S., is permitted to return to duty within the period of his leave

LIEUTENANT COLONEL C P LUKIS, I.M.S., Principal and Professor of Medicine Medical College, Calcutta, and First Physician, College Hospital, is allowed privilege leave for one month, with effect from the 3rd September 1906, or any subsequent date on which he may avail himself of it

LIEUTENANT COLONEL G F A HARRIS, I.M.S., Professor of Materia Medica, Medical College, Calcutta, and *ex-officio* Second Physician to the College Hospital, is appointed, in addition to his own duties, to act as Principal and Professor of Medicine in that College and First Physician to the College Hospital with effect from the date on which he assumes charge to the 21st September 1906, during the absence, on leave, of Lieutenant Colonel C P Lukis, I.M.S., or until further orders

LIEUTENANT COLONEL D G CRAWFORD, I.M.S., made over charge of the Hooghly Jail to Captain A F Stevens, I.M.S., on the afternoon of the 9th August 1906.

BRIGADE SURGEON LIEUTENANT COLONEL GEO MASSY, I.M.S. (retired), died at Bath on May 14th, at the age of 61. The deceased, who obtained the diplomas of M.R.C.S., Eng., in 1864, and L.R.C.P.I. in 1865, entered the service as an Assistant-Surgeon in October 1865, he became Brigade-Surgeon Lieutenant Colonel in March, 1890, and retired some years later. Lieutenant Colonel Massy was for many years a well known Punjab Civil Surgeon

MAJOR HARRY WILLIAM ELPHICK, M.B., Indian Medical Service, died at Rugby, May 20th, aged 40 years. He

joined the Bengal Medical Department as Surgeon Captain, September 30th, 1889, and became Major September 30th, 1901. He was placed on half pay, March 6th, 1905. He took part in the Manipul Expedition in 1891, receiving a medal with clasp. He was for several years in Civil employ in the United Provinces

CAPTAIN D S A O'KEEFE, I.M.S., assumed charge of the Civil Medical duties at Sheikhuddin on 12th May 1906,

LIEUTENANT COLONEL D ST J GRANT, M.D., I.M.S., Professor of Chemistry, Lahore Medical College, has been granted privilege leave for one month in May

CAPTAIN R F PILKINGTON, I.M.S., is posted as Plague Officer, Amritsar

THE services of Captain A Chalmers, I.M.S., are placed permanently at the disposal of the Madras Government

CAPTAIN DEV CONDON, I.M.S., is granted three months' privilege leave

CAPTAIN T S B WILLIAMS, I.M.S., is posted as Residency Surgeon, Persian Gulf

LIEUTENANT COLONEL KENNETH MCLEOD, M.D., retired, Indian Medical Service, to be a Honorary Physician to the King, and is granted the honorary rank of Colonel, *vice* Deputy Surgeon-General T E Charles, M.D., deceased. Dated 2nd May 1906. COLONEL K MCLEOD, M.D., F.R.C.S., was for many years Professor of Surgery in the Calcutta Medical College, and for 22 years Editor of this Gazette. He only recently retired from the post of Professor of Military Medicine at Netley

DR R HAY PULEPAKA, Civil Surgeon of Rangpur, was allowed 6 weeks' privilege leave from 3rd June 1906

Notice.

SCIENTIFIC Articles and Notes of Interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

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Annual Subscriptions to the Indian Medical Gazette, Rs 12, including postage, in India Rs 14, including postage, abroad

BOOKS, REPORTS, &c, RECEIVED —

Annual Report of the Reformatory Schools at Alipore and Hazaribagh.
Sanitary Administration of Burma, 1905
Manual of Midwifery, Eden, Messrs I & A Churchill
The Philippine Journal of Science, June, 1906
The Journal of Tropical Veterinary Science, July, 1906
Report on the Hospitals and Dispensaries of Burma, 1905
Annual Report of the Government Cinchona Plantation and Factory in Bengal 1906
Calcutta Medical Journal, September, 1906
Article on the Physiological Actions of Ergot By H H Dale, M.A., B.C.
Annual Return of Charitable Dispensaries (Bengal), 1905

LETTERS, COMMUNICATIONS, &c., RECEIVED FROM—

Major H Smith, I.M.S. Jullundur, Lt. Col Smyth Bangalore Dr D J Johns, London Messrs A. M Hart, Ltd London Capt Lane I.M.S. Purnea Lieut C J Bailey I.M.S. Saugor, Lieut M Cowen, I.M.S. Sirur, Poona, Capt Mackie I.M.S. Poona, Dr J P Modi Hardol, Oudh, Capt C Dykes, I.M.S. Etawah Dr Parkinson Fatehpur Messrs Smith, Stanistreet & Co, Calcutta, Dr I W W Stephens Liverpool School of Tropical Medicine, Capt Thurston I.M.S., Monghyr Major Hall, I.M.S. Sylhet, Lt Brierley, I.M.S. Saugor, Colonel King, I.M.S. Burma, Asst Surgn Haricharan Banerji Chanchal, Kaviaraj A C Bishnand Nadla Dr Davidson, Travancore, Dr L Fink, Burma, Lt Hay Burgess, Chakdara.

Original Articles.

PRELIMINARY NOTE ON THE DEVELOPMENT OF PIROPLASMA CANIS IN THE TICK

BY S. R. CHRISTOPHERS,

CAPTAIN, I. M. S.

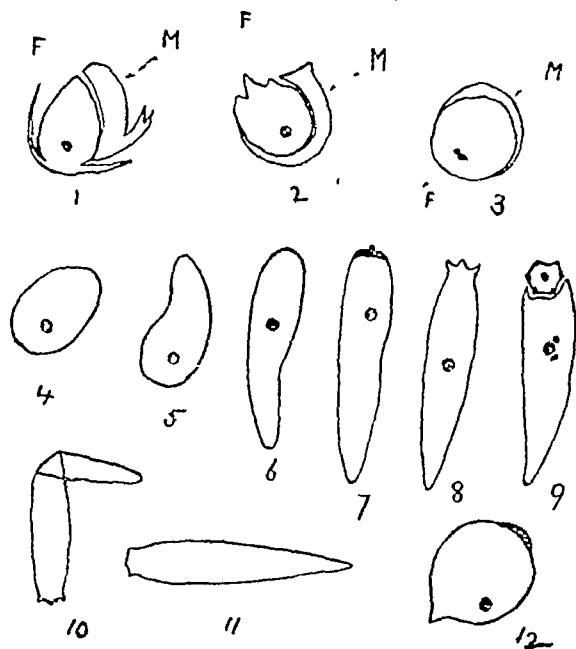
Koch has recently described developmental stages of *P. bigeminum* in the tick. This is the sole contribution to literature which can be held in any way to lessen the mystery which surrounds the developmental stages of piroplasma in its intermediary host, the tick. The facts noted by Koch are very briefly, that parasites in the gut of the tick enlarge somewhat and develop sharp ray-like processes. After the second day couples are seen connected together. These Koch considers to be conjugation forms. Koch also describes in the ova of ticks which have been fed on infected cattle, pear-shaped bodies about four times the size of piroplasma as it is seen in the blood. Intermediate stages between these and the forms in the gut are also described. I am able to confirm Koch in that piroplasma canis has been shewn by me to undergo an almost exactly similar development in the tick *R. sanguineus* (Latreille).

In addition to masses of large angular forms similar to those described by Koch, I have seen others which appear to shew clearly that conjugation has taken place, the male element after giving up its chromatin being thrown off or stretched out over the enlarging fertilized female element (*vide* Figs 1, 2 and 3). The develop-

ment of the fertilized elements into the large forms in the eggs can be followed step by step, the parasite leaving the gut in an intermediate stage. Koch, in his description and figures of the forms in the egg, has indicated very little structure beyond that seen in piroplasma in the blood. In reality these large club-shaped bodies when fully mature are rather highly organized. They are not, as is the case with the vermicles of hæmogregarines or the sporozoites of coccidia, composed of finely granular protoplasm, but they possess a comparatively dense ectoplasmic cuticle containing a fluid and transparent endoplasm.

Thus when they bend acutely a kink occurs at the situation of the bend (Fig 10). Another striking feature is an apparatus carried at the anterior extremity and very distinctly seen in the living parasite. Koch in some of his forms figures a dark staining mass in this situation. This is obviously the structure referred to by me, though Koch has not noted its significance. Seen edgewise, the apparatus shows as a dark cap with one or three spikes (Figs 7 to 11). On the flat this structure gives rise to the appearance noted by Koch, except that by careful examination a central and four or five circumferentially situated processes can often be made out (Fig 9). In the fresh state a distinct neck is present (Fig 11). Bodies not fully developed shew only a darkly stained cap, or are devoid of this structure altogether. After a strongly infected tick has been kept a certain number of days, swarms of mature and immature forms, both of which are endowed with considerable motility, may be seen outside of, and in the walls of, the ovary and oviducts. The mature forms, which may be seen in the act of penetrating the tissues of the oviduct, exhibit lateral flexion of the tail-like end, first to one side and then to the other. The immature forms are rather more active and more leech-like in their movements. In preparations stained with Nocht's Romanowsky the protoplasm of the bodies stains a peculiar shade of light blue, and is very homogenous and free from granules or inclusions. The chromatin mass is of comparatively small size, and the general appearance of the body is in a high degree characteristic and peculiar. In the egg the vermicular parasites again become globular and increase somewhat in size (Fig 12).

Although, therefore, a great deal has still to be discovered, we can follow with some degree of enlightenment a portion, at least, of the extra corporeal life cycle of piroplasma. It is probable that repeated schizogony in the gut of the tick leads eventually to male and female amœbulae by the conjugation of a male and a female amœbula, the chromatin of the male passing into the female and its body eventually degenerating. The fertilized element after becoming round, oval or eventually club-shaped leaves the gut, the transitional forms being found both in the gut



Figs 1 to 3 Conjugating forms shewing the cast-off body of the male and the growing fertilized female element.
Figs 4 to 6 Stages in the formation of the pear shaped bodies.
Figs 7 to 9 Mature pear shaped bodies as seen in stained specimens.
Figs 10 to 11 Mature pear shaped bodies in fresh state.
Fig 12 Globular form shewing remains of the tail, and a dark area in position of the cap.

and in the ovary Further, development results in the formation of the gregarium form vermicles which we have already described These, one may presume to be the ookinite A final globular form is also seen in the egg which may be the young oocyst

Further steps in development are, of course, at present purely conjectural, but we may reasonably expect sporogony to be completed in the egg or body of the larva, and as I have shewn in a previous publication, it is only necessary for an organism to remain passively in the yolk of the ovum to eventually find itself within the gut of the larva, nymph or adult of the second generation The moment sporogony is complete and sporozoites liberated in the alimentary canal of the young tick, a very simple method of re-entry into the mammalian host, would be open to the parasite, and whether the larva, nymph, or adult is infective, might quite well depend upon the time taken for the completion of sporogony Unfortunately, this is purely hypothetical, and there are very considerable difficulties in following up the parasite under these conditions

A more detailed account of my work on the development of *protoplasma* will be published shortly (see also further Note, below p 500)

ADDRESS ON THE EPIDEMIOLOGY OF PLAGUE

By J ASHBURTON THOMPSON, M D, D P H

(Continued from page 441)

9—*Slow progress of the disease in hordes*

With those few exceptions, also, the progress of the disease among the horde infesting any

premises has been usually quite slow This is an observation of so much importance that in 1903, I published 9 tables in illustration of it Plague-rats and plague-mice were taken over quite long periods in conjunction with healthy rats and mice, and notwithstanding disturbance the healthy animals continued to be caught after the last infected animal had been taken So that, although, for some unknown reason, plague occasionally sweeps off the whole horde, it very much more often follows a slow course within buildings (as it did, also, on the troopship *Antillean* which was infected at Capetown, but arrived at Sydney 29 days later with some plague-rats and many more healthy rats on board her), and when it does so the horde does not become alarmed and does not flee the premises

10—*Limit of the functions of the rat-search*

These observations explain at once the long continuance of epizootics, the small percentage of rats in which plague has been identified, the larger but still small percentage of rats reasonably presumed to have been killed by plague, the slow spread of the epizootic, and the small number of separate premises at which presence of the disease in rats was established Two practical conclusions to be drawn from them are these First, a properly organised search can be made to reveal the limits of the area over which the epizootic extends, but our best efforts will never tell us what the severity of the epizootic was, secondly, discovery of a single plague-rat should be taken as the signal for strenuous exertion by the sanitary authority in that neighbourhood, and even in that quarter of the

EXAMPLES OF SLOW PROGRESS OF PLAGUE AMONGST HORDES OF RATS

Badly kept stabling for 100 horses, which stood on about 1,500 square yards of blown sand, a long distance from the point of invasion

Date	NO EXAMINED		NO INFECTED		Date	NO EXAMINED		NO INFECTED	
	Rats	Mice	Rats	Mice		Rats	Mice	Rats	Mice
15th June 1903	12		11		15th July 1903		3		
16th " "	30	2	18		16th " "		2		1
17th " "	17	9	10		18th " "		2		
18th " "	20	6	11	1	20th " "		2		1
19th " "	30	3	13		21st " "		2		
20th " "	18	7			22nd " "		1		
22nd " "	7		1		24th " "		2		
23rd " "	6	8		2	30th " "	2			
24th " "	4	5		3	7th Aug "	1	1		
25th " "	1	3		1	10th " "		2		
26th " "		3		1	11th " "	1	2		
27th " "	2	1		1	12th " "	1	1		
29th " "	1	6			13th " "		2		
30th " "	2	1		1	14th " "		2		
1st July "		6		1	15th " "	1	1		
3rd " "		2			17th " "	1			
4th " "		2			18th " "		1		
6th " "		2			22nd " "				
7th " "		1			24th " "	1	1		
8th " "		1			26th " "	2			
9th " "		2			27th " "	2			
10th " "		1			28th " "	1	1		
13th " "		1			31st " "	2			
14th " "		1							

Dec, 1906]

EXAMPLES OF SLOW PROGRESS OF PLAGUE AMONGST HORDES OF RATS —(Contd)

Produce Stores at the point of invasion

A					B				
Date	NO EXAMINED		NO INFECTED		Date	NO EXAMINED		NO INFECTED	
	Rats	Mice	Rats	Mice		Rats	Mice	Rats	Mice
21st May 1903	1	3		1	16th May 1903	2			
22nd , ,	(1 cat) 1	1		1	19th , ,	2	1		
23rd , ,	1	4		1	22nd " , ,	2	5		
25th , ,		3		2	23rd " , ,	1	3		
26th " , ,	1	8		2	12th June " , ,		1		1
27th " , ,		11		2	6th July " , ,	1	2		2
28th " , ,		4		1	7th " , ,	1	18		
29th " , ,		7		2	8th " , ,		2		
30th " , ,		16			9th " , ,				
1st June " , ,		12		1					
22nd , ,		2							

C					D				
Date	NO EXAMINED		NO INFECTED		Date	NO EXAMINED		NO INFECTED	
	Rats	Mice	Rats	Mice		Rats	Mice	Rats	Mice
18th May, 1903	8	4	1		15th May 1903	10	5		
19th "	2	1			18th " "	47	47		
18th June		7			19th " "	1	1		
19th " "		4			20th " "	9			
20th " "	1	4			25th " "		1		
22nd " "	2	2			26th " "	1			
23rd " "		3			27th " "	1			
24th " "		5			5th June "	3	1		
25th " "		3			6th " "	3	1		
26th " "		2			9th " "	2			
27th " "		1		10th " "	1	1	1		
29th " "	1			11th " "	1				
30th " "		1		15th " "	16	7	8		
1st July "	2	1		16th " "	8	5	7		
2nd " "	1			17th " "	12	5	2		
4th " "	4	3		18th " "	5	3	2		
6th " "		1		25th " "		2		1	
7th " "		1		29th " "	1				
9th " "	3	10	1	1st July "	1				
10th " "		4		25th " "		7			
13th " "		1							
17th Aug "		2							
18th " "		1							
19th " "		1							
21st " "		1							
22nd " "	2	1							
24th " "		1							
25th " "		1							

town The percentages given above, it will be noticed, indicate merely what we succeeded in finding, not all that happened

11 —The interval between epizootics, and the "bridge" which connects them

The interval between our epizootics were in order, 15 months, 8½ months, 6½ months, and 45 days Two causes have been assigned to recurrence and to persistence of rat-plague One is possible saprophytic persistence of the bacillus, external that is to say, to the animal body, of that suggestion I believe I have disposed, as far as Sydney is concerned by showing how easily areas are permanently rid of their infection The other is that the rat is affected with plague in

a chronic form, which causes but few deaths, until something occurs to revive its virulence I do not deny existence of a chronic form, but I say that while on the one hand we have failed to obtain any evidence which points to it, on the other hand we have found it an unnecessary hypothesis Why had we intervals so widely different as one of 15 months and one of 45 days? As regards the former the obvious explanation of its length is that the disease had in reality been extinguished

As regards the latter, we may say without presumption that we know it was cut short by reimportation from another part of our own State At all events, while we had probably infected a northern river district (where an epizoo-

tic began about the middle of December 1904) by means of the numerous steamers which carry on the produce and darning trades with it, the first plague-rats in 1905 at Sydney were caught at the very wharf at which those steamers lay to discharge. Secondly, as to the other two intervals of $8\frac{1}{2}$ and $6\frac{1}{2}$ months, we can say (if our continuous and careful search availed anything) that during then we were certainly free from plague in rats, none of the 17,160 taken by the intelligence staff during the first, and of the 18,456 taken by it during the second, had plague. Thirdly, from the 18th of January 1905 to this date, plague-rats have been found continuously. They were in very small numbers, and were taken only on the very short line of wharves already referred to, it is true, but they were all rats which had died of acute plague. These being the observed and, we believe, the completely observed facts, it seems to me that reference to chronic plague becomes superfluous, and as very little indeed has been ascertained regarding it, further reference to it may be deferred.

12. *Where plague-rats are most constantly found*

Analysis shows that plague-rats have been found most persistently at wharves, then in warehouses and shops, then in stables, and then in more or less dilapidated cottages. One circumstance is common to all these kinds of places, either they are easily accessible to rats (*cf* Hankin on Plague at Bombay, *Annales de l'Institut Pasteur*, XII), or are used in ways likely to attract rats. Such uses are the storage and distribution of food-stuffs. But there is one use which is pre-eminently favourable to rat-infestation, and in connection with which we have most commonly found plague-rats, this is the produce-trade in hay, straw, chaff in bags, maize, and potatoes. This point is well and importantly illustrated by our wharf-experience. I do not know what the total length of the wharf-line at which sea-going vessels lie may be, but it is many miles. Now, I have already said that our continuous examination of rats has been confined in time of peace to a wharf line which measures only about four miles, and that we have learned that when plague recurs it will first show itself at a part of that line which is a little more than a mile long. But we can be still more exact, and assert with confidence that the chances are the disease will reappear at some point within the half even of that mile, and that is precisely the part at which the produce trade by sea with other States is carried on. So, also, all our sub-epidemics have begun either at retail produce-stores in the suburbs, or at stables to which produce has been carried in quantity from these wharves. If I were asked with what goods danger of the spread of plague is greatest, I should have no hesitation in naming produce of all sorts, returned empties

with packing still in them, and bundles of empty bags.

13 *Repeated infection of Sydney*

In view of the evidence bearing on non-inherence of the infection in place, of that touching the interval between epizootics, and of that just mentioned which bears on association between plague-rats and a particular class of merchandise, I express with confidence the opinion that the successive epidemics at Sydney have been due not to continuous, but to repeated infection, which has always taken place by sea, and which has generally been connected with the importation of produce. Usually, though not always, the infection must have come to us from neighbouring States, and no doubt we have sometimes returned it to them. Plague has been maintained in Australia, I think, chiefly by an unseen, but traceable, interchange of the infection between ports, but occasional contributions from foreign countries have, no doubt, assisted from time to time, since its first introduction to the continent must have happened in that way.

IV—MODE OF INFECTION

It is convenient at this point to consider very briefly the modes in which the infection may be received by man.

1 *Inoculation*

After pondering much that has been written on the pathology of plague, it appears to me that the evidence is greatly in favour of the view that its seat of election is the lymphatic system—a view which has been ably supported by Maximilian Herzog (*The Plague*, Bacteriology, Morbid Anatomy, and Histo-pathology, Bureau of Government Laboratories, Manila, 1904), and that it is in favour, further, of the view that the commonest mode of receiving the infection is by inoculation through the skin. This, therefore, seems to me to be the mode of infection to which epidemic plague is due. Other modes are known to have been effective occasionally. Such for instance is drop-infection.

The suggestion that plague might be taken by the digestive tract seems to have been first made by Wilks in his preliminary report on plague (Hongkong, dated 20th May 1896), it was advocated by him in his later and better known paper (November 1896). He based it on the signs observed at 30 out of 150 necropsies. They consisted in hæmorrhages under the mucous epithelium of the stomach or intestines, swelling of the lymphatic follicles and of Peyer's patches, and sometimes ulceration of the latter. He remarked that general infection of the intestinal mucous membrane was usually present, but in some cases the alterations mentioned were so prominent that they seemed to him to indicate a primary infection of the intestinal tract. No better evidence for this mode of infection has been adduced by the few writers who, from time to time, have since espoused it on precisely the same grounds, its slender character, and its compatibility with origin in toxæmia, are apparent.

But he also supported his view by the successful results of his animal experiments, which he made by

feeding either with cultivations or with the tissues of animals which had died of plague, in some of them the material was introduced into the stomach by means of a glass tube. These results, he said, meant more than those of inoculation experiments, because they approximated closely to natural conditions. This part of his evidence also has not been improved upon by the writers already alluded to. But I would point out that a review of feeding experiments in general shows that success is more likely to attend on feeding with tissues than with cultures, and then, secondly, that such experiments by no means approximate to natural conditions, and at best could never be brought to explain epidemic plague. For the only source from which the food of man could receive the infection sufficiently often must be from the muzzles and mouths of rats, when it would be present in very small quantity, or from contact with their excreta when it must be in exceedingly small quantity (unless the dung itself were swallowed, which surely could rarely happen), and these conditions differ from the experimental conditions in the crucial respect of quantity of the virus taken, if in no other. But they do differ in another respect. It is that the virus administered in the cultures and in the tissues was actually growing, and at the highest pitch of its activity, while the virus casually communicated to food must be in a state of declining vitality, for in competition with true saprophytes *B. pestis* rapidly becomes overgrown. It is true that Milton J. Rosenau's results (The Viability of *Bacillus Pestis*, Bulletin No. 4 of the U. S. Public Health and Marine Hospital Service, Washington, 1901) which agree with those of Tidswell at Sydney (Report, 1902, pars. 256-8) and of most other observers, show that the protected bacillus can persist outside the animal body during periods of time which vary with the conditions, but the judicious remark made by Passed Assistant Surgeon H. D. Cettings should be always borne in mind, namely, that the conditions which obtain in daily life are not on all fours with those under which exact laboratory experiments are conducted. And I would enforce it by reference to a practical consideration. Our "normal" results have yielded many cases in which workmen were plainly infected at their workplaces. Now, these workmen carried their dinner with them in parcels in which it remained until dinner time came round, and therefore, although their food was eaten in an infected place, it may not be assumed that it was ever exposed to infection. That considerable body of people could not have been infected by feeding.

Wilm's excellent paper is so often referred to as though it were of equal value in all respects, that it seems not unnecessary to point out here—though with all respect that while no other trustworthy observer has ever succeeded in isolating the bacillus from human feces (in which, nevertheless, it must often be present), he stated that his "culture examinations of feces gave positive results in all of the fifteen cases examined, where well marked enteric symptoms were present" (first report, p. 3 (e)).

2 The bacillus in the blood-stream

In accordance with that view is Tidswell's experience, that the bacillus is rarely to be found in the peripheral blood-stream before the agonal stage of the disease, in which he agrees with the great majority of careful observers among whom the Bombay Plague Committee (*vide supra*, The Bombay Plague, 1900, p. 102), Calvert working at Manila (1900-1), and Powell working at Bombay (1904) may be specially mentioned. His method was to incubate the blood in the Widal pipette in which it had been collected for 24 hours before examining it. It should be noted, that the possibility

of cultivating the bacillus in blood *in vitro* does not warrant an inference that it can proliferate in the blood *intra vitam*.

3 Mechanism of Inoculation

The means by which the bacillus comes to be inoculated into man has generally been assumed to be by contact between deposited infection and the skin, and it will be remembered that such contact was at first supposed by some to be the cause of preponderance of buboes in the region of the groin in people who habitually went barefoot.

Tidswell, after having repeated the experiment of Albrecht and Gohn of the Austrian Plague Commission in India on inoculation by application of plague-cultures to the shaved skin of guinea-pigs, reached conclusions which warrant the following statement—(a) Before infection can take place in that way, there must be a breach of the epithelium, though not a bleeding wound, and (b) that breach must be recent, for it becomes repaired in about 24 hours so that infection by that channel can no longer be effected. Those are two limitations which attach to man, but now let the other side of the matter be considered. First, in order to contribute effectively to cause epidemic plague in this way, the infection must be deposited by the rat on objects with which man is likely to come into contact, but, secondly, on such objects it does not survive more than three, or perhaps, four days as a rule, and that only when it is protected from the competition for life of saprophytes to which, of course, it is exposed under the circumstances now contemplated. There then, already, are four conditions which must be fulfilled before infection through the skin can take place, and what is more, they must be concurrently fulfilled within narrow limits of time. But there is yet another consideration of weight. It is that rats, after all, could thus infect only some few small spots, even in a room, so that when the four conditions have been fulfilled within the requisite time, still the chances are greatly against accidental apposition between that small part of the body which has been injured, and those small spots in a room which have been infected. I believe, it will not be thought necessary that more should be said in order to show that epidemic plague, though it be caused by inoculation, cannot be caused by accidental contact between the skin and deposited infection.

V—ASSOCIATION OF EPIDEMIC AND EPIZOOTIC PLAGUE.

1 There is a relationship in time and place between Plague in Rat and Plague in Man.

The result of continuous examination of our rats has been to show us that rat-plague always coincides in place with plague in man, and in time always precedes it, but the presence of

plague-rats in districts has not always been attended by plague in man. If, however, infection of the rat be a necessary condition of epidemic plague, a closer connection between plague-rat and man should be traceable. Accordingly house-association between the two was often discovered. But often, on the one hand, it could not be discovered, and on the other, often when it was discovered it was not attended by cases in man. Further, the commonly accepted observation that actual contact with the plague-rat is unnecessary to infection of man, was corroborated, and as a matter of observation was learned to have occurred very rarely. Moreover, such contact when it had occurred, was generally not followed by infection, and that, it will be observed, was in accord with a very extensive laboratory experience which shows that the many persons who now habitually dissect plague-rats invariably escape infection, provided they do not wound themselves with their scissors and needles. The contradictory character of these several observations stands forth. The unavoidable inference from them is that, if epizootic plague be a condition precedent of epidemic plague, yet the plague-rat cannot be the only factor concerned. By itself the plague-rat is impotent. Nevertheless, I do not doubt that it is a necessary factor. Indeed, I see strong reason for regarding plague as a disease which belongs to, or primarily affects, the rat, for no ascertained fact has ever shown that it can originate with any other animal than the rat, nor that it ever prevails in truly epizootic form among any other kind, save one. The exception is a species of marmot (*Aictomys Bobac*, *spermophilus*), which is indigenous to Mongolia, but that can have no direct bearing on our subject (see *Zabolotny, Annales de l'Institut Pasteur*, XIII, p 838).

2—An interval elapses between the beginning of Epizootics and attack of Man

Let us then survey the epidemic phenomena in hope of finding help in one of them towards solution of the puzzling problem which our normal results have disclosed. Out of many things which have been asserted of plague as the result of incomplete observation, occurrence of an interval between attack of the rat and attack of man stands out as a reality. We have seen it constantly, but we have also seen that it need not be long, as is generally asserted, but may be quite short.

The occurrence of a definite interval is well exemplified by the following observations. We have good reason for believing that our rats were dying of plague on the first occasion during the first week of January 1900, and that they had probably become infected some time before, but the first case was not attacked till 19th January, the second not until 17th February, and the disease did not become widespread till two or three weeks later still. In the second outbreak immediately after the first case had been notified we ascertained that the epizootic already existed at three or four

separate points, namely, at the produce store at which the patient had been employed, at a wharf where produce was habitually handled, and soon afterwards at another produce store, and at a stable a few hundred yards from it, all the latter having stood a little way inland of the wharf—"mauka of it," as the convenient phrase runs in the Territory of Hawaii—and all having probably been infected *per saltum* from it. Yet there was an interval of 34 days between that first case and second, and of 35 days between the second and the third. In 1903 the epizootic was recognised on 12th May, but the first of the only two cases which followed was not attacked till 17th June. On the fourth occasion the epizootic began 29th February at a certain produce-store, the first person was attacked 9th March at that store whence he had removed dead rats as late as 3rd March, and where others were afterwards found and plague in them identified, but the second case did not follow until 32 days later. I need not continue the series, for I can say that an interval was observed on every occasion, both in districts and in houses.

3—Evidence that Rats must die Before Man can be attacked

Of this interval many mysterious things have been alleged, but I believe, it is now hardly necessary to point out that the first step towards explanation of it lies in recognition of the simple requirement that time must elapse before the rats, which are usually first infected at such uninhabited places, as wharves, &c, can sufficiently penetrate to the dwellings of man. But another condition contributes to lengthen it, which cannot be so easily explained. An interval is always observed even between the invasion of individual houses and the occurrence of cases in them. The difficulty of identifying plague in rats has already been mentioned. It has arisen in this, that, however soon, cases have been notified after attack, dead rats have been found, and usually they have been found in an advanced stage of putridity. Of this I could furnish very many specific instances, did not time press. It is the common rule. Occasionally prompt notification has led to the discovery of fresh carcasses, but always some of the rats found have died already. Plague-cases do not occur till rats have died of plague in the house, or in its immediate neighbourhood, then and not till then may man be attacked. We shall make acquaintance with what I believe to be the reason for this almost directly.

4—Seasonal incidence of Plague

With assistance of the first four outbreaks the seasonal incidence of plague at Sydney can be fixed. The first or crude statement is the following. The first epizootic began with January, and the last plague-rat was identified in August, the second began in November, and the last plague-rat was identified in July, the third began in May and ended in August, the fourth began in March and ended at the beginning of December. But it requires some adjustment as to the beginning of the second and the end of the fourth outbreak. Although the

second epizootic began in November, and evidence of it was found on four separate premises during the latter half of that month, no further evidence of it was got, notwithstanding continuous search, until the middle of January, in other words nothing that could be called an epizootic then existed.

The period of wide-spread plague in the rats did not set in until about the beginning of February. And as to the end of the fourth, although it actually fell in December till the end of that, which could be called an epizootic prevalence clearly fell in September, the plague-rats identified during the three latter months of that year, numbered only 5, 2 and 1 respectively. So that the epizootic period may be fixed as falling between January and August, there or thereabouts. And the height of the epidemic period coincided nearly with the height of the epizootic, March, April and May were the months in which the disease was most active in both forms—that is to say, in as far as we could estimate the smaller fluctuations of the latter.

I would here point out again that collection of plague rats is never complete, nor nearly complete (unless on board empty ships) and that the numbers collected cannot be taken to indicate inferentially the proportional severity of the epizootic. The rat curves so frequently presented cannot be relied upon. They indicate the activity of the search perhaps, and may show its success, or they may only testify to the enterprise and cunning of natives who have brought rats from outlying places for the sake of a reward.

VI—THE FLEA AND EPIDEMIC PLAGUE

1—Necessity for a living intermediary between Man and Rat

The results of "normal" observation which I have now described have explained nothing. They have served only to establish a series of contradictions. For instance, while it appears on the one hand that the infection is not diffused by fomites, on the other it has been credibly reported from other parts of the world where the conditions of life differed somewhat from ours that it has been seen to spread by that means, and not exceptionally. Again, while we have succeeded in detecting a frequent association between dead plague-rats and cases, we have seen in a small minority of instances for thinking that no plague-rats were present on premises which, nevertheless, had proved infective, more than that, it is well known that dead plague-rats are harmless to man. Then, when plague-rats have been ascertained to be present on inhabited premises, examination of the result has revealed similar contradictions. We have seen that persons who resort to such premises are liable to receive the infection, and yet the association has proved entirely harmless very often indeed. Again, although in that association multiple cases have sometimes occurred, by far the most often only one person has been attacked out of many exposed. I need

not adduce more examples. The contradictory character of these, and of other well-established events is striking, and it appears from them—a very important point—that the familiar crude observation of local coincidence between rat-plague and human plague, which is logically incompetent to establish causality as between rat and man, turns out to be quite incompetent in fact also as soon as it is examined by the epidemiological method. Indeed, when the crude coincidence is taken together with the contradictions, the resultant evidence strongly suggests that both man and rat take plague independently of each other from some common source. So far, however, one consideration has been omitted which, in my opinion, has not received due recognition. This, broadly stated, is that the infection has been found external to man's body only in the bodies of the lower animals. Notwithstanding appearances, therefore, it must be that man receives the infection from the rat, although, as we know, the dead rat is certainly impotent to infect him. The crucial question, then, is how it comes to be communicated. Now, *the intermediation of some insect which has the power of taking it from the rat and of inoculating it into man, and which can retain the latter power for a considerable, and perhaps for a rather long time, is the only means consonant with all the recognised phenomena, which can be imagined.*

2—Why the living intermediary must be the flea

By induction we had reached this stage in 1902. As soon as we had satisfied ourselves that an insect intermediary was necessary, we reviewed our notes to learn which insect was concerned if, perchance, they might furnish a hint. I need not detain you with a long description of the search. We found 12 cases in the 1902 series—and more might have been found in the series of 1900 had the notes for that year been sufficiently full, since we found more after 1902—in which solitary buboes, situated in the femoral chain (resultant, therefore, from inoculation in the lower extremity) were exhibited by persons who had certainly received the infection at their work-places. There they were all clothed. Their lower extremities were thoroughly well protected, at all events from casual contact with deposited infection, by boots and socks or stockings, and by trousers or petticoats, while their hands, arms, and faces, and sometimes their chests too, no doubt, were fully exposed. Yet they were not inoculated in those exposed parts, but in their protected parts. These cases showed that inoculation must have been effected by some agent to which neither clothes nor the epithelium offered serious obstacles, by some agent which could evade the one, and which could penetrate the other without causing either noticeable pain or a visible wound. It was perceived, of course, that the flea alone answered

these requirements, and then that fleas, which commonly breed within houses in the dust in corners and in the cracks between flooring-boards, notoriously reach the legs first in places where they are numerous

3 What is the characteristic of the season of danger?

We have seen already that the greatest prevalence of epidemic plague has occurred with us during March, April, and May. The season of danger, which equally includes the time when it is most difficult to arrest epizootic plague, may be fixed, then, as being the autumn, for with us midsummer falls in December, midwinter in June. That is the season when most people suffer, and when rats most suffer. It is also the season of fleas. From about February onwards is the time when sandy patches, far removed from dwellings, begin to swarm with them, when domestic dogs are worried by the species which infests them as at no other time of year, and when one or other of the rooms in many a house which is neither dark nor dirty, but often of the better class, becomes for a time overrun with them. But although the months referred to are the time of special prevalence of fleas and of their more general obtusiveness, it must not be forgotten that these insects are to be found all the year round, and in numbers in the warm, dark places where they best breed.

The more important points in the history of the flea-hypothesis are much as follows. In 1897 Ogata communicated plague to mice by inoculating them with crushed fleas taken from infected rats (Ogata, *Cent f Bakt*, XXI). In 1898 Simond (*Annales de l'Institut Pasteur*, XII), formally espoused the hypothesis in a summary of his Indian experiences. He supported it by reference to epidemiological, clinical and experimental observations, which did infinite credit to his acuteness and penetration, but the epidemiological portion was (perhaps necessarily in his circumstances) unconvincing, his clinical observation of the frequent presence of reaction at the assumed point of inoculation in man has not been confirmed, although it was seen in four cases out of a very large number observed at Bombay (The Bombay Plague, &c., 1900, p 104), and in one at Sydney (Report, 1900, p 56), and his experimental evidence was seriously defective. Nevertheless his paper furnished ample ground for hopeful investigation on the lines indicated by him, and this we undertook with the results which have been described in our series of reports, and summarised in this paper. His experimental evidence consisted in successful repetition of Ogata's experiment, and in four experiments on the communication of plague from rat to rat by means of fleas. They resulted in infection with plague of one rat and one mouse. The species of the fleas used was not determined by him, but was probably *Ctenocephalus serraticeps* since he took them from cats. In 1899 Nuttall (Johns Hopkins Hospital Reports VIII) reported that several kinds of bacilli, among which plague was not included, soon lost their virulence in the flea's stomach, and he failed to communicate plague by means of bugs (*Cimex lectularius*). In 1900 Galli Valerio (*Cent f Bakt*, XXVII) made some examination of the question which had been raised whether rat-fleas would bite man, and concluded that neither (*Typhlopsylla musculi* nor *P. fasciatus* (*Ceratophyllus fasciatus*)) would bite him. He remarked that *Ct. serraticeps* was rarely

found on the rat, this our experiences in the same year (Report 1900, p 40) did not contradict, and we now know it to be the case with our rats. Tiraboschi (*Arch f Hyg* XLVI) also carried out a long series of experiments with *C. Fasciatus*, *Ctenopsylla musculi* and some other less common species, and concluded that neither of them would bite man, but on the contrary showed positive distaste for his skin, although starving. In 1901 Kolle (*Zeitsch Hyg f XXXVI*) made many attempts to communicate plague from rat to rat by this means without success. In 1902 Tidswell communicated plague to a guinea pig by injecting it with a crushed flea taken from a plague infected rat, and discovered that *P. Pallidus* was the common rat flea in Australia (*P. Cheopis*, Roths), this species has since been ascertained to be the common rat flea in India. He found further that both that species and our *C. fasciatus* would bite man, if only they were starved. This latter experiment was carried out as in Mosquito feeding, namely, the fleas were placed in test tubes, the mouths of which were closed by fine gauze through which they bit. During this year Zierlin, after having worked at Rome with a strain of plague derived from Naples, published a preliminary note (*Der Pestbacillus in Organism der Flohe*, *Cent f Bakt*, XXXI) in which he said, he had observed that *B. pestis* not merely survived in fleas for seven or eight days, but multiplied and maintained its virulence. In 1903 Gauthier et Raybaud (*Revue d'Hygiène*, XXV) experimented with *C. fasciatus* and (perhaps) with *P. Pallidus* at Marseilles and found they would bite man and could live on man's blood, and they succeeded in communicating plague from rat to rat by fleas in five instances (*C. fasciatus*). In the same year Galli-Valerio (*Cent f Bakt*, XXXIII), returned to the subject, reiterated his opinion that rat fleas would not bite man, and adversely criticised Raybaud et Gauthier's work. In February 1905 (*Indian Medical Gazette*, February, 1905, p 43), Liston suggested that the bacillus of plague must be transferred from rat to man as a condition of its continued existence, and Hankin in 1906 (*Journal of Hygiene* VI) described his dissection of the stomach of a flea which had been taken from the carcass of a plague free rat found dead during progress of an epidemic of plague. From one half of the stomach he got a pure cultivation of *B. pestis*, as shown by involution-forms on salt agar, &c., in the other half he observed bacilli with rounded ends which resembled *B. pestis*, in groups of about 12 each, from which he inferred that they were growing there, and on then way to reach the salivary apparatus. These two latter suggestions do not seem very probable, for *B. pestis* is a schizomycete. In 1905 Simond (*La question du véhicule de la peste*, *Rev Médicale du Brésil*, 1905) expressed his opinion that *Ct. serraticeps* was for several reasons probably the species which most generally acted as agent, our observations have not supported that view, for as has been noted by us (Reports, 1900, 1902), that species has been found on our rats but rarely.

4—Fleas leave their proper hosts for other kinds of Animals

It is well-known that different species of fleas have their proper hosts, and prefer them to other kinds of animals. Human fleas do not infest rats, and rat-fleas do not infest man, were it otherwise the rule, perhaps, would be to find multiple cases in plague-houses instead, as is the case, of finding only one person infected out of several equally exposed to the danger. Why, then, should it be supposed that rat-fleas will leave the rat for man? In 1905 Liston (ubi cit supra) made the suggestion that they remain with their proper host as long as it is available, and when it dies or is

withdrawn, proceed to seek food from the next nearest animal; and he supported it with some interesting observations. He mentioned two instances in which dogs and cats seemed to have saved their owners from attack by *Ct serraticeps* as long as they were present to afford food, but as soon as they had been withdrawn their owners suffered. This accords with an observation of my own, namely, although pet dogs are tormented with fleas at the proper season, their mistresses in whose laps they lie are not (or very rarely are) attacked. But Liston was able to adduce further and more direct evidence. Rats having died of plague in a public garden at Bombay near a cage of guinea-pigs, presently the latter began to die of plague, and on searching the survivors he was able to collect from them a good many specimens of *P pallidus* (*P. Cheopis*, Roths), which in Bombay and in Australia is the common rat-flea, although guinea-pigs in India (and in Australia) seldom possess any fleas at all, and when they do so, harbour only one or two specimens of *Ct serraticeps*. He observed also, transfer of the common rat-flea from rat to man. His attention was drawn to people who had been expelled from their house by the attacks of fleas. It appeared that on the 6th or 7th of a month the rats in the house had begun to die of plague, on the 11th fleas became so troublesome that the people had to sleep out on the veranda, on the 17th one of them fell ill with plague, and after him another, on the 20th Liston collected 33 fleas on the bodies of the remaining persons. As many as 14 of them were of the species *P pallidus*. Yet among 246 fleas collected by him from the clothes of various persons under ordinary conditions but a single specimen of *P pallidus* was found. May this indicate the reason of our observation that man takes plague only after rats have died of it?

5—*Power of any kind of Flea to communicate Plague not rigorously established as yet*

Direct experimental proof of a satisfactory character that it is in the power of any species of flea to communicate plague is at present wanting, and it should be observed that after it shall have been given still the epidemiologist alone can say whether the disease actually is commonly so spread. I do not doubt that the experimental proof will be forthcoming some day, and it occurs to me that I shall most usefully conclude these remarks by pointing out the reason for that confidence. It lies in this. We did not test the hypothesis of the flea because it had been put forward, we observed epidemic plague, and then found ourselves obliged to turn to it for an explanation of the phenomena. Without our "normal results" formed a heterogeneous collection of data which were either disconnected, or actually in conflict with each other, with it we found that those data fell easily into a concatenated series. Thus, to borrow from

philosophical terminology, we arrived at a "theory of plague." That harmonious reconciliation of all the observed facts certainly holds good at Sydney, and although the mode of diffusion of plague is likely enough to exhibit slight variations of detail under the different conditions which obtain in some other countries, in them also it must hold good in all essentials.

OPERATIONS FOR CATARACT

By R. H. ELLIOT, M.B. (LOND.), F.R.C.S. (ENG.)

MAJOR, I.M.S.,

Ophthalmic Surgeon, Madras

IN the August number of the *Indian Medical Gazette*, Major Smith has replied to my criticisms in the May number of his paper which appeared in the previous September number (1905). I have carefully read and re-read his paper, and I cannot find that Major Smith has brought forward any statistical or other evidence which can be considered to afford support to the position he has taken up in this controversy.

I will take up some of his points *seriatim*. The italics are my own. Major Smith takes exception to my understanding him to imply that he holds that vitreous "when partially lost is generated *de novo*," and adds "any one who reads my paper or the passage can see that it does not imply anything of the kind." What Major Smith actually wrote was "The vitreous seems to repair as well as any other tissue, and why should it not? The place of escaped vitreous is either taken by aqueous humour, or is it renewed."

I leave it to your readers to decide whether these last four words do or do not imply a belief on Major Smith's part in the possibility of a regeneration of the vitreous. It is the only meaning I can put on them as they stand. Moreover, in the rest of the paragraph he lays himself out to defend the same position. Closing this defence he writes, *apropos* of Parsons "It is a pity that the writers of books on general and special surgery were in so many instances not men of experience. If they were, we would not be entertained to such rubbish." To any one who has read Parsons' book, I can safely leave the judgment on this matter. It is scholarly, erudite and scientific, and requires no defence from me or any one else. It is difficult to believe that Major Smith has ever read the book he criticises so crudely.

Major Smith replies as follows to my demand for statistical evidence in proof of his contention above stated—"After recovery of an eye from which there has been a small escape of vitreous (1) there are no appearances of scars or bands in the vitreous, (2) normal tension is maintained, and (3) the vision of the eye does not suffer." Major Smith is evading the point. I wrote "if Major Smith can tell us that he has kept

a number of cases of vitreous escape under ophthalmoscopic observation for months or years and that he has not observed the formation of bands in the vitreous detachment of the retina or other evil consequences, his evidence will be epoch-making." Major Smith's comment on this is "I have something else to do than to make out pedagogic statistics, which at best would be considered to have a human element in them." He thus acknowledges that to follow up his cases is a task far beyond his power. No one contends that the evil consequences of vitreous escape are immediate, they take months or years to come on. Such is the experience of European surgeons who are able to follow up nearly every case they operate on, and who are therefore more *practical* men than we can possibly be. An operator in this country may logically say "my operative practice is too large for me to follow up my cases. I don't know what becomes of them. My impression from what I see during the days or weeks they are under my eye, is that, they will continue to do well, when they go home," or he may make great efforts to follow up his cases (the vitreous escape cases in this instance) and may confront European experience with figures which, whilst they admittedly only cover a part of his practice, are yet sufficiently numerous and sufficiently consistent to carry conviction with them. Major Smith admits that he cannot follow up his cases, and at the same time asks us to believe that the complications which we fear and which the experience of others who do follow up their cases has led us to fear, do not exist. This seems to be illogical, and it will certainly fail to carry conviction either in Europe or India.

Major Smith says, "my failures do not go elsewhere." He is probably the only surgeon in the world who can say that. In view of his admission that he is unable to follow every case, one wonders how he knows it.

Again he says, "statistics are at best a very poor substitute for what can be actually seen." I would reply that it is universally recognised by scientific men that general impressions are very apt to lead to erroneous conclusions, that science is measurement, and that it is only by the most laborious study of accurately compiled statistics that just conclusions can be arrived at. Every one admits the human element in statistics, but if such an element creeps in even where we have done our best to exclude it, how much more dangerous must it be in influencing the conclusions of those who rely on the leadings of a so-called practical experience unchecked by scientific methods.

Major Smith comments on my remarks about the diagnostic value of upward displacement of the pupil. I did not say "upward displacement of the pupil." What I did speak of was "the characteristic upward displacement of the pupil" which "indicates that the hyaloid membrane was ruptured at the time of the operation." From

his remarks I gather that this sign has escaped Major Smith's attention. Major Herbert has described it at length on p 44 of his book, Pope recognised and described it on p 205 of the *Indian Medical Gazette* for 1901, and quite independently of either of them, I have long been familiar with it. Major Smith says "But in no case do you get it (i.e., upward displacement of the pupil) without adhesion of the iris to the scar of the corneal incision, which is its sole cause." He could have made no more cardinal mistake, for the very essence of this sign is that it is independent of the incision and that "the upper half of the iris has disappeared, retracted behind the scleral margin" (Herbert). Or to borrow Pope's words the upper part of the iris disappears above the sections. Only the most superficial observer could confuse these cases with those in which the iris is caught in the wound, for the plane of the iris is so obviously posterior to that of the portion of sclera behind which it has partly disappeared.

Our opponents may urge, and with some show of reason, that since we so greatly dread the consequences of vitreous escape, we ought to produce our own statistics as a justification for our fears, and to prove therefrom that our apprehensions of the ill-consequences arising from vitreous escapes are well founded. I would answer this objection in a two-fold manner (1) positively and (2) negatively. To take them in this order, (1) We know that the European ophthalmologist has a very decided dread of the after-consequences of vitreous escape. Major Smith values European opinion very lightly, in this we differ from him, unless we have a very strong case to go on, we feel that it would be injudicious of us to go against what we believe to be a widespread and deeply rooted ophthalmological opinion. (2) Negatively we have to acknowledge that up to date our own statistics give us too little to go on for the simple reason that with our present methods the percentage of vitreous escapes is so very low that those are comparatively few of such cases to return and be seen again. It is not even as if one could count on one's failures invariably coming back to the original operator. I see other peoples' failures from all parts of India, and I do not doubt that others see mine. It is only natural that this should happen, and I do not think that *any other* surgeon will advance the claim Major Smith has advanced, *viz*, that his failure do not go elsewhere. Seeing then that our vitreous escapes are few in number, that *probably* only a percentage of them culminate in blindness (we will presumably all concede this to Major Smith), and that of these only a percentage are likely to come back to the surgeon who did the original operation, it is obvious that our difficulties in the way of settling the question are great. At the same time it is henceforth our obvious duty to lose no opportunity of carefully investigating the cause of failure in each poor or blind eye we meet with after extraction.

When I spoke of the "blind eyes I see from old operations in which the characteristic upward displacement of the pupil indicates that the hyaloid membrane was ruptured at the time of operation," I was dealing mainly with my experience of the failures of other operators, and I did not pretend that I was quoting exclusively from my own statistics. The circumstances of the case made it impossible that I should be so doing. The value of the evidence lay in its supporting, so far as it went the opinion of European workers. I leave it to your readers to say whether Major Smith's remark that "any evidence seems sufficient to persuade Major Elliot when he has a case to support" was deserved or not. I submit that it was uncalled for and incorrect, and it is, moreover, peculiar in that it emanates from one who has resented the criticism of an other on himself as being "over the border-land of fair controversy."

Major Smith makes the following comments—"Major Elliot does not agree with me on nitis following cataract extraction. He does not call a case in which there is plastic exudation from the lower surface of the iris attaching it to the capsule a case of nitis." To thus take this sentence out of its context gives a very twisted idea of its meaning. I am sure that any surgeon who will read my original statement at the foot of page 163 of this journal (May 1906), will agree with what I have there written. Such plastic exudation as I refer to is no more to be considered inflammatory than that which seals together the lips of an aseptic wound healing by first intention. In fact, the same conditions are present in both cases, viz, the apposition of aseptic raw surfaces. One of course admits that the modern pathologist considers the changes which occur in a wound healing by first intention to be of the same nature as those which are met with in inflammation. There is, however, this great difference that whilst in the one case these changes are kept within well defined bounds, and subserve the needs of the healing process alone, in the other they overleap those bounds and produce morbid phenomena. To confuse these two conditions clinically would be worse than pedantry, as it would obscure important issues. The determining factor is the presence of sepsis. In its absence, we are bound to deny the title of "inflammation" to the process clinically, whatever may be said of the strict nature of the healing process from a purely academic and pathological stand point. On the other hand, I have never denied the advantages to be gained from a method which is proved to eliminate nitis, always provided that such immunity is not too dearly bought in other ways.

Major Smith does not agree with me that removal of fragments of lens capsule (I object to his word "tampering" as it is unscientific in that it begs the question) after expulsion of the lens is less liable to cause escape of the vitreous, than expressing the lens in its capsule. He

says "it is much more liable in my experience to be associated with escape and copious escape of vitreous." These remarks are unsupported by any statistics. In my last paper, I quoted the vitreous loss of 200 cases. In 170 cases, the capsule was left untouched with a percentage of vitreous loss of a little under 3 per cent. In 30 cases where capsule was removed the loss rose to 5 or 16.6 per cent. What now are the figures for vitreous escape in Major Smith's operation? Do they support his contention?

Pope, after giving Major Smith's method a "good trial," gave it up, on account of the high percentage of vitreous escapes (*I M G*, June 1901).

Major Budwood had 47 per cent in his earlier cases, and 35 per cent in his later cases of vitreous escape, whilst performing Major Smith's operation. (*I M G*, June 1906).

Captain J C S Oxley had 30 per cent of vitreous escape in 40 cases of Smith's operation.

Harbert (whose exact percentage of vitreous escapes in the complete operation I cannot exactly make out) writes "It is thus evident that the lowest attainable percentage of vitreous accident in ordinary extraction is very distinctly lower than in the 'complete' operation." (*I M G*, Feb 1906.)

It is to be borne in mind that my figures represent a percentage within a percentage. They do not show my vitreous loss on the 200 cases, which, even with this element thrown in, was only 5 per cent but on the 30 cases out of that 200, in which it was found necessary or advisable to remove floating fragments of capsule after extraction. It is, however, the series of 30 cases which comes within the arena of this argument. Even so, a comparison of my figures with those of skilled surgeons, such as Major Budwood or Captain Oxley, appears to support my contention, which was, that, "Though this manœuvre (the removal of obvious floating pieces of capsule after extraction of the lens in selected cases) has thus doubled my vitreous loss, it is to be taken into account that it is a much less dangerous proceeding than the expression of a lens in its capsule, etc."

Major Smith attacks my views on the causation of keratitis, and maintains that my figures support his contention and not my own. I leave that point to be settled by the judgment of your readers, and pass on to criticise his statement "These things (keratitis, etc), practically speaking do not occur after extraction in the capsule." Is this statement correct? Turn on two pages in the August number and read Maynard's evidence on the subject "Keratitis—There was haziness of the cornea in 19 cases, varying in degree, and coming on a few hours after operation, etc etc." The percentage figure here reads at nearly 11 per cent. My percentage of keratitis quoted in the paper Major Smith is discussing was 12 in one series and 14 in another. Maynard's figures and my

own are strictly comparable, since we both lay stress on the value of careful note-taking, and do our best to follow up our patients, a practice which Major Smith contemptuously labels "pedagogic" (!!) note-taking. This, I think, safely disposes of Major Smith's assertion that "these things do not occur after extraction in the capsule."

Major Smith says "*Major Elliot does not consider after-cataract an evil of any importance, nor an invariable consequence of leaving capsule behind*" He then quotes Berry and Sim against me, and goes on to say that he agrees with the opinion of those writers, and thinks he is right in saying that "the men whom Major Elliot calls the 'masters in Europe' are of one mind on this point. Later he says "*Major Elliot regards iritis, keratitis and after-cataract as things of not much importance*"

First let me quote some passages from my paper which Major Smith is answering. Therein I wrote "*I do not mean for a moment to deny that iritis after cataract is a great misfortune, but I take exception to the sweeping nature of Major Smith's statement*" Again I wrote "*As to after-cataract, I admit that it is an evil, but not, to my mind at least, as serious an evil as Major Smith contends*" And again "it has long been recognised that the inclusion of fragments of capsule in the margins of the wound is a prolific source of deep-seated inflammation during the after-course of a cataract operation." These sentences show the whole tone of my paper, nor is there in it one sentence to suggest that I make light of iritis, keratitis, etc. I submit for the judgment of your readers that Major Smith has gravely mis-stated the case. I consider that Major Smith has over-rated certain dangers and under-rated others, and I have said so, but there is no justification in the whole of my paper for the mis-statements I have quoted above. They convey a wholly erroneous impression to any one who has not read it in the original.

It is true that I do not fear the consequences of needling an after-cataract, and that I do not believe an after-cataract to be the invariable sequel of the operation I perform. I stand by all I have written on this subject. My experience of needling in after-cataract has been a very happy one, thanks to my taking the same precautions to obtain asepsis in this little operation as I take for a major operation such as an extraction. In a letter to this journal published in the June number and written before he had seen my article now under discussion, Major Herbert gave his experience in dealing with after-cataract, which coincides very closely with what I had written. In the same letter he discusses the question of "the invariable after-cataract." He deals too with the part played by the posterior capsule in these cases. Any one who will take the trouble to read

Herbert's article and mine side by side will be struck with the closeness of our agreement, and with our wide divergence from Major Smith's views, yet we wrote in absolute independence of each other.

That these views which Herbert and I hold are not universally accepted, I am well aware, but when Major Smith says in discussing Berry and Sim's views, that he thinks "The masters are at one on this point," he is clearly mistaken. The views of "nos maîtres" have been recently very carefully collated by the indefatigable Danièl, and published by him in *La Clinique Ophthalmologique*. It would be hard to find any single point on which they are agreed, but this would certainly not appear to be one of them.

I am unable to follow Major Smith's remarks about the method of diagnosis of an after-cataract membrane. I presume his reference to the use of X-rays is meant as a form of humour. I think it is out of place in a scientific discussion.

As to the rest, does Major Smith mean us to understand that in order to diagnose such a membrane he uses a candle, and arrives at a diagnosis of the presence of a membrane by the difficulty he has in seeing a fundus, as compared with the difficulty in seeing that of a normal eye. It is almost incredible, and yet it is the only meaning I can extract from his words. Of course, it is always more difficult to examine an eye from which a lens has been extracted. To do so, one always chooses a strong source of light. This is explainable on ordinary simple optical principles. It is due (1) to the absence of the normal lens, and (2) to the substitution for it of a smaller artificial lens at a greater distance from the subject's illuminated retina. The absence of the normal lens leads to a want of concentration of the beam of light entering the patient's eye, which is hence less intensely illuminated at the requisite spot. The substitution of a smaller lens farther away from the illuminated retina which is acting as a secondary source of light, must obviously reduce the amount of light available for the observer's use, the more so as in view of the absence of the normal lens, this light is divergent and not parallel in direction at the present time, and with modern methods of establishing an accurate diagnosis at one's disposal, no one thinks of guessing as to the presence or absence of an after-cataract by the amount of interference it presents to the passage of light through itself to the fundus. The usual, I would almost say the invariable, method adopted by ophthalmologists to effect the diagnosis of such a membrane, is to place a powerful + lens in the aperture of the ophthalmoscope, and employing a bright source of light to obtain a clear view of the after-cataract itself. An electric loupe will do the same thing still better, but few surgeons possess one, whilst all have an ophthalmoscope. Membranes which are invisible with an ordinary

ophthalmoscope, are easily seen if a well-lit $5\frac{1}{2}$ volt lamp is used. Any one who likes can try this for himself, and place the question beyond the boundaries of mere assertion. I am accustomed to show it to my students, and I have had the opportunity of demonstrating it to a few medical men as well. I am willing to do so any day I am asked.

I must apologize to many of your readers for entering on such elementary matters, but Major Smith's unlooked-for assertions have obliged me to do so.

I cannot understand Major Smith's expression, "the men whom Major Elliot calls, 'the Masters'." Any one who is acquainted with the continental literature of ophthalmology must know that the term "the Masters" did not emanate from me or from any other Englishman, and that it is of no mushroom growth. It is a widely used and honoured term for men whose work and opinions command respect amongst all scientific medical men. It is extraordinary that one should be obliged to make such a disclaimer in such a paper as the *Indian Medical Gazette*.

Major Smith says of atropine "It is one of the most dangerous drugs in the pharmacopœia, though so necessary in the old operation from the frequency of inflammatory complications of the iris." The amount of congestion it produces is objectionable, and a not inconsiderable danger of post-operative glaucoma, one of the most formidable of complications, is associated with its use.

I am not aware of any evidence on which such statements can be based. I have searched carefully through the leading authorities' views on the subject of the pharmacological action of the atropine salts, without finding anything to support the view that these drugs cause congestion of the eye. Whitla says of atropine "It has been advocated in various acute inflammations on the theory that it contracts the small blood-vessels" (Whitla's *Medical and Therapeutics*, 8th Edn.)

Sollmann says of its use in iritis that its "effects assumed favourable changes in the circulation of the iris" (*Text-book of Pharmacology*).

Shoomaker speaks of an "increase of arterial tension" which he ascribes to "the contraction of the smaller vessels," and which he thinks "may be due to action of the drug on the muscular fibres of the walls" (*Text-book*).

Again, speaking from the purely practical standpoint, it is my routine method to instil a solution of sulphate of atropium into the eyes of all cataract patients (provided no contra-indication exists) two days before the operation. The patients come up the following day in order that the lens may be described. In this way I see about 20 cases of cataract with the pupil under atropine every Friday morning.

So far from these eyes being congested they are always clear and natural.

And again, whilst admitting that rest to the intrinsic muscles of the eye is a large factor in the action of the atropine salts, would the drug be universally resorted to by ophthalmologists in iritis if it at the same time produced congestion of the iris? Certainly not.

Most writers on the subject are content to ascribe post-operative glaucoma to the consequences of the impaction of a tag of capsule, or possibly of iris in the lips of the wound. I fail to see the need to conjure up an assumed action of atropine to explain a phenomenon which is easily and satisfactorily explained on simpler grounds. Is it possible that Major Smith is confusing atropine-irritation of the conjunctiva with deep-seated congestion of the eye? With the former phenomenon, we are of course all well acquainted.

No one disputes that under certain conditions the instillation of atropine may lead to an increase of tension, but all alike ascribe this to crowding of the iris into the angle, and interference with free outflow. In cases in which the tension is doubtfully or decidedly increased, no one thinks of using atropine. Personally I then substitute hematiopine, or else dispense with a mydiatic.

As to the danger of post-operative glaucoma of which Major Smith thus speaks. On what figures does he base his remarks? Out of 1,100 cases which I published in the *Indian Medical Gazette* in 1897, I only met this complication three times. Again, out of 750 cases published in the *Lancet* in 1902-3 there was not a single case of the kind. Together these figures give a percentage about 0.16 per cent. I am aware that others have met with the complication more often, but even then it is a rare event.

I therefore consider that Major Smith has greatly exaggerated the danger in question, and I further am of opinion that the theoretical basis on which he founds his arguments about the action of atropine is opposed to the usually accepted views on the subject, and is unsound.

I am moreover at a loss to explain the apparent contradiction contained in the above two sentences I have quoted from him. In the first, he says that the use of atropine is "so necessary in the old operation from the frequency of inflammatory complications of the iris", whilst in the second, he asserts that "the amount of congestion it (i.e. atropine) produces is objectionable." The two statements appear to be in flat contradiction of each other.

Major Smith has repeatedly laid stress on the necessity for seeing this operation performed by himself or by one of his pupils before one can do it properly, and I have been asked by a surgeon in another presidency, whether I think this claim can be entertained. I have not the least hesitation in replying in the negative. I am confident that there are a very large number

of men in India, who can soon learn to perform any operation which has been *clearly and intelligibly* explained to them

Major Smith asks me "Who are the masters in Europe?" It is a strange question, and only serves to accentuate the difference in the position taken up by Major Smith from that which most of us are content to occupy

Again, Major Smith chafes under the treatment accorded to him by the profession at Home. It is not possible that other motives besides blind prejudice against a successful Anglo-Indian surgeon actuated the B M Association meeting of 1903, whose attitude towards himself Major Smith complains of. Most men in our service who have gone Home, have found their experience coincide with my own, that the status voluntarily accorded to us by our confieres at Home has been altogether too flattering—embarrassingly so at times, in fact, and this both on the continent and in Great Britain. In no case can we hope to better their opinion of us by writing in the way Major Smith has done. It has been the most regrettable feature of this controversy. Whatever professional men at Home may think of one of us, or of us as a body, their self-respect would keep them from discussing us in the discourteous and ungenerous way in which Major Smith has discussed them. Indeed, on one occasion he has gone so far as to impute deliberate deception to "a few of the leading men in Europe," when a much simpler explanation of the problem would have occurred to any trained ophthalmologist, an explanation which must have suggested itself to many of your readers at the time, and which is more probable, more generous and more scientific. I refer to the remarks on p 327, column 2, para 3 of the *Indian Medical Gazette*, September 1905.

In the same connection, I would enter a protest against the remarks Major Smith has made about Major Herbert in his last article (September 1906). Fortunately, Major Herbert's reputation both in Europe and in the East stands too high to be in the least affected by such an attack, but the very fact of its being made marks an epoch in the degeneration of this discussion.

Major Smith has on several occasions endeavoured to rank himself and his movement with Feyer and Keegan in the litholapaxy revolution. Considering that such an attitude on his part reflects severely on the many who have not followed his practice, it would surely have been better for him to wait till others than himself enrolled him in such distinguished company. Maynard has dealt with this point so caustically and clearly on page 319 of the *Indian Medical Gazette*, August 1906, that I need merely to refer your readers to the third new para. of that page in the second column.

Major Smith accuses me of "posing as the guardian of the junior surgeons in India," and says they are men as capable of judging as myself.

I entered this discussion with reluctance, for the very reason that I have unbounded confidence in the judgment of the rank and file of our service, and I felt sure that they would in time come to a right line and hold it. I was deterred from that policy of isolation by being asked by a number of men in the service to answer Major Smith's claims. Since my last article appeared I have received letters from various brother officers, in Bombay and Bengal, as well as in Madras, which have been all too kind in their tone. I am aware of my own limitations far too well to attempt to dictate to such a body of men as our service is composed of. What I have endeavoured to do in both these papers, is to place some of my experience (and like Major Smith I now count my extractions by the thousand) at their disposal. That the tide of opinion will flow irresistibly in the right direction, whatever that may be, I am confident, and in that confidence in my brother officers I leave the disposal of this important question without a fear or a doubt.

EXTRACTION OF CATARACT IN THE CAPSULE

By H HERBERT,

MAJOR, I M S.

It will readily be admitted that Major Smith's article in the September number of the *Gazette* calls for a reply. The reply, however, will be as brief as possible.

His attitude is sublime in its simplicity and—if I may be permitted to follow Major Maynard—in its arrogance. Because he has performed a certain operation an extraordinary number of times, he is to be accepted as the ultimate authority upon everything connected with the operation in the remotest degree. It is "impertinent" to question the most revolutionary statements upon the anatomy, physiology and pathology of the eye, though they be contrary to all we have been taught, and though they rely for their support solely upon Major Smith's *operative experience*. I submit that this is a bare literal translation of the following remarks as applied to the numerous statements to which Major Elliot and I have objected: "My opinions are based on a personal experience of about 14,500 cataract extractions, over 13,000 of which were in the capsule. He calls this unsupported." After pointing out that he is one of the three men who have had experience of intra-capsular extraction worthy of the name, he continues: "The average man who, for example, removes goitres would, I think, justly be regarded as impertinent, if he used such language towards Kocker (Kocher?), who reports 1,000 cases without a death."

Is it a paradox to suggest that if Major Smith had performed fewer operations, he might know more about cataract? Beyond a certain extreme limit, the mere repetition of an operation

must be less profitable to the surgeon, than time spent in following up cases and in working out side issues

Major Elliot undertook the thankless task of challenging seriatim Major Smith's peculiar opinions as published in the Gazette for September 1905. But Major Smith is incorrigible. He has transgressed again in each paper he has written since. In the September, 1906, number he says "There is no such thing as a transparent posterior capsule on a cataractous lens." How untrue this is can be readily tested by any civil surgeon who has the opportunity of examining with the ophthalmoscope (direct method with +20 D lens) a number of eyes, months or years after ordinary cataract extraction. It is proverbially difficult to establish a negative. One would have thought that before venturing upon such a rash statement, Major Smith would have at least examined carefully some hundreds of aphasic eyes in which the capsule had been left. Instead of this he floats cataracts in a basin of water, and on this flimsy evidence makes the above characteristic pronouncement. It is quite likely that the action of water may render the lens capsule opaque.

Again, take the following passage "Like other theorists on the subject he talks about the anterior and the posterior capsule. It implies

a separate nutrition and a separate function for the anterior and for the posterior capsule. It implies in short that the lens has two separate capsules—an anterior and a posterior—and such is necessary to explain the assumption that the anterior is generally opaque, while the posterior is generally transparent." These assumptions are, to say the least, extraordinary. (If one may be pardoned a few words of elementary anatomy) every student knows that the capsule covering the front of the lens is in immediate contact with a single layer of cells, which at the equator lengthen out into the lens fibres. It is only rarely, in certain cataractous lenses, that these cells grow around to line part or whole of the posterior portion of capsule also. When an ordinary cataract extraction is performed the lens cells are left behind, attached to the capsule. They form part of what is microscopically recognisable as the capsule. And the conditions known as "capsular cataract" and "capsular opacities" are, for the most part, simply the result of abnormal proliferation of these cells. Thus, it is that the posterior capsule of a cataractous lens is nearly always transparent, while the anterior portion frequently appears more or less opaque.

It is strange how observations and facts unpalatable to Major Smith become "theory," and how tempered criticism either degenerates into "throwing mud," or goes "over the borderland of fair controversy." This from the writer of the gibe "My Assistant Surgeon is at least as experienced in everything concerning cataract as Major Herbert himself!"

Major Smith smarts under the sense that his work has been coldly received in England. (See an article "The Treatment of After-Cataract in the *Archives of Ophthalmology*, March and May, 1906). Can one wonder? What can one think of claims advanced with every degree of inexact and loose statement? The September, 1906, article is an inexcusable specimen of slipshod method. In it there are three misquotations and at least two other mistaken criticisms.

(1) I said that Major Smith should refrain from publishing "absolutely unwarranted and unjustifiable statements" in a general medical journal, on a matter belonging to a special department of surgery. This is very different from publishing "matter belonging to a speciality" in the *Gazette*.

(2) I published the visual results of our last fifty cases of intracapsular extraction at the C. J. Hospital, Bombay. Major Smith refers to them as "his first and last 50 cases."

(3) I made the statement that "iritis and irido-cyclitis are without risk in so far as they are caused by lens remnants, if the cases are properly treated." Major Smith in discussing this sentence omits the important qualification printed in italics (not in italics in the original), and thus materially alters the meaning of the sentence.

(4) The opinion which, as I suggested, should have been published in an ophthalmic journal or before an ophthalmological society, was that attributing detachment of the retina to pressure at or behind the ciliary region. This has not been published in the *Archives of Ophthalmology*, so far as I can find. It was published in the *Gazette* for April 1906. The only recent paper on cataract extraction by Major Smith in the *Archives* is the one which appeared in the *Gazette* for September 1905.

(5) Major Smith assumes that when I spoke of the Jullundur percentages being "inconsistent with common experience," I meant common experience of the intra capsular operation. And on this assumption he waxed indignant. As a matter of fact, I was referring to the absolute impossibility of obtaining such percentages in this country, unless one rejects cases which ought to be operated upon (according to my experiences at stated in my February paper).

Major Smith may consider that my remarks were not worthy of close attention. If so, he should have refrained from discussing them. As things stand, wherever we are able to check his statements we find them frequently at fault. Can he then expect us to accept his work as a whole? I firmly believe that he writes always in good faith, but this is not sufficient excuse.

A propos of some remarks of mine, Major Smith states that he has never seen a case of late retinal detachment "in which there was not an old irido-cyclitis," and in his opinion "the cases most likely to have an irido-cyclitis—septic excluded" are extractions by the ordinary method in which the complication, loss of vitreous, occurs before the delivery of the lens. This is too large a question to be taken up here. I can only say that the cases of late detachment to which I referred followed expulsion of the lens in its capsule—whether by spasm of the lids, or intentional—and they were free from irido-cyclitis. I have had no experience of detachment of the retina clinically recognizable, attributable to irido-cyclitis.

following operation. We expect to find total detachment of the retina frequently in eyes softened and shrinking from irido-cyclitis. But to see the condition the eye must usually be removed and opened. And naturally such cases are not referred to when we speak of detachment complicating cataract extraction.

The clinching argument in favour of the intra-capsular operation is held to be the growth "of an ordinary district dispensary to be larger than the next four largest ophthalmic hospitals in the world as far as cataract is concerned." Accepting this expression without cavil, I do not admit that it is evidence at all in favour of intra-capsular extraction. I wish particularly to emphasize this point, as the position at first sight appears a very strong one. It may be held to prove that the present Jullundui results are much better than were obtained there formerly, and than the average now obtained in that part of India. It may prove also that disasters, such as the degenerations described by Maynard, and detached retinas and shrunken globes are not very common at Jullundui. But beyond this it does not go. Why does Major Smith persistently ignore what appears to be the main factor in his success? It is accepted in ordinary extraction that the chief problem affecting results is the exclusion of sepsis. Major Smith publishes an exceptionally low percentage of suppurations, 0.34 per cent without remarks. With this small amount of infective loss, there is surely a wide margin left for such accidents as those above mentioned without the percentage of success sinking near the 89.1 per cent "cured," quoted by Major Birdwood as the average result obtained in the United Provinces during 1903 and 1904. Until others in Northern India exclude infection to the extent that Major Smith does, whether by the use of 1 in 2,000 perchloride for conjunctival irrigation, or otherwise, the enormous expansion of the work at Jullundui must remain a unique tribute to Major Smith's general success, to his tireless industry and unbounded enthusiasm, and possibly to several other good qualities. The annual crop of cataracts is a revelation to outside world of what a cataract country can produce. But it is no argument in favour of removing the lens in its capsule. As Major Smith says, the patients judge only by broad results.

VISUAL RESULTS IN 40 CONSECUTIVE EXTRACTIONS OF THE LENS BY SMITH'S METHOD

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In reference to Major Maynard's recent statement as to the excessive amount of astigmatism following Smith's incision, I think that it might be of interest to publish a second* series of

40 cases in which I have myself carefully tested and recorded the vision. These are all the cases operated on by me between January and August of this year. The number is not large, but if it be remembered that this is a consecutive series of the ordinary run of cases presenting themselves for operation at a small district dispensary, the results possibly will have an interest for the large number of junior surgeons in charge of such dispensaries.

It is for such I write as I do not presume to compare my results with those of more experienced operators.

Smith's incision was adopted in every case. I have tried others, but find that if the incision be made more peripheral the liability to escape of vitreous is increased, while if made more central the edge of the lens does not so readily present in the wound.

I find that, so far from there being a great degree of practical astigmatism, few, if any, patients will take as much as +1 D Cylinder without a deterioration of vision. I cannot say what degree of corneal irregularity might be revealed by an ophthalmometer in selected cases. I feel sure however that were the usual result excessive astigmatism, the acuteness of vision recorded below, using spherical glasses only, would not be obtainable.

I have been on the look-out for instances of deterioration of vision in my old cases. The number I have been able to follow up is too small to record, but I may mention that I have not come across any whose vision has gone down, but several where it has improved.

In the present series the vitreous escapes are in excess of my former results and are certainly unduly high. As my last 19 extractions show only two escapes, I think I may fairly attribute this excess to the fact that my assistant was twice changed, and that the new-comers did not at first grasp the exact way to conduct the lid *manœuvre*. This is, as pointed out by Smith, a very essential part of the operation and one must have an assistant who can manage it properly. The action of the orbicularis must be completely inhibited and that too without jamming the hook into the upper lid—a proceeding causing pain and straining. A nervous heavy-handed assistant would largely increase the percentage of vitreous escapes occurring with any operator.

In the series tabulated below the vision is recorded as found with plain spherical lenses only, usually a +10 D.

No of cases	Escape of vitreous	Vision 1-2	Vision 3-4	Vision 5-6	Vision 7-8	Vision below 9	Failed	Irish
40	16	14	9	6	3	6	2	2
per cent	40%	35%	22.2%	15%	7.5%	15%	5%	5%

* 1st series, *Indian Medical Gazette* December, 1905

The two failures were due to vitis following sepsis. In neither of these cases was there any loss of vitreous, so this cannot be considered a factor in its production in these instances. There was no case of suppuration, and vision could very probably have been restored in one of the failures had the patient remained under treatment.

Among the vitreous losses I have included those in which a head has been extruded by the patient after the operation was over.

As may be supposed the above being unselected cases, the series includes some more or less unfavourable cases with slightly raised tension, sluggish pupil reaction, old granular lids, etc.

It will be observed that ordinary vitis is conspicuous by its absence.

The visual results work out at 95 per cent cures. First class vision 72.4% second class vision, 22.5%. Among the latter I confidently expect in many cases much improvement to occur in a few months time.

As to whether the above results compare favourably or otherwise with those obtained by other operators of equally small experience employing the old operation I am not able to judge. I do know however that as compared with my own efforts when I employed the old operation they are infinitely superior.

I have every hope that with more experience I shall be soon able to reduce my vitreous escapes to about 20 per cent. In fact in my latest 26 cases (not included in this paper) I have reduced it below 16%.

Smith has given us, as even his most severe critics admit, an operation which practically eliminates simple vitis, a complication which is I expect to many, as it was to me, a bugbear of the first magnitude.

If he will, as Capt. Gidney suggests, follow up 1,000 cases and if it be shown that no ill results follow a slight vitreous escape, the position of Smith's operation will be unassailable.

SURGICAL SHOCK

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THE note by Major Smith in last month's number on Surgical Shock, calls attention to a subject, the importance of which is often underestimated, and to a method of treatment of which a record of experiences will greatly add to our knowledge.

The etiology of this emergency in surgery is nowadays quite lost sight of, and, what are unquestionably errors, are handed down from text-book to text-book, and taught in our schools, with the result, that, year by year, the death-roll from shock remains constant.

From actual cases that have come under my own notice I should divide the etiology of shock (apart from mere cardiac syncope) depending on paralysis of the vasomotor controlling centre in the medulla, thus—

CAUSATION—(1) *Predisposing*, (2) *Actual or exciting*.

Predisposing—(1) *Fear*—The nervous inhibition, caused by the higher emotional centres on the vaso-constrictor centre, causes the blood pressure to fall to an extraordinary low figure—the radio-brachial diastolic reading will be at times as low as 60 mm Hg instead of the normal 90–110 mm Hg, and from observing two noted cases of shock, I think in cases, where there is doubt about the lowness of arterial tension, this ought to be tested by the hæmomaniometer, and if found to be below 90 mm Hg, then the operation must be delayed until the pressure again reaches this figure.

(2) *Impure chloroform*—This is especially liable to occur in India, where fresh supplies are impossible. The mere shaking of the bottle, with access of sunlight, is sufficient to cause the decomposition of a minute quantity of the drug, with the formation of one or more of the carbonyl-group-compounds (COCl_2) whose excessively poisonous properties resemble those of carbon monoxide, i.e., vaso-inhibitory and cardio-depressor stimulation.

(3) *Sudden noise, etc*—During the preliminary stages of anesthetization, the receptive centres are all raised in excitability (the physiological property of all narcotics) and the sudden crash caused by falling of a bottle, or sudden shouting may cause vaso-inhibition, which, when begun so early, will be of grave import in the later stages of the operation, if it be at all protracted. I have seen one fatal case from the fall of a glass douche can and at least two other cases where the arterial tension was profoundly modified.

(4) *Bloodless operations*—The preliminary vaso-inhibition and fall in blood pressure caused by chloroform in small doses is best counteracted by allowing a small flow of blood which establishes a condition of true cerebral anemia for the time being, which will, if the dose of chloroform be not excessive, stimulate the vaso-constrictor centre and give a rise in pressure, which, no matter however small, or momentary, will shew less tendency to fall off than when no preliminary stimulus be given to the tone of the arterial systems. This loss of blood, which is a factor for nothing but good is overruled by the modern mania for leisurely bloodless operating.

Actual or exciting causes—(1) *Overdose of chloroform*—This is almost always due, if the drug be pure, to the unskilled or careless hand of the anesthetist. The admixture of an with the chloroform is not so important as the admission of pure an (say once in every ten or eleven inspirations). The vaso-inhibitory centre is

stimulated by chloroform, and to counteract its action, it is most important that sufficient oxygen be present in the blood to enable the vaso-motor centre not to lose one atom of its vitality. The allowance of sufficient time for the accommodation of the peripheral heart (the arterial system) to the cardiac mechanism is necessary, and hence the induction of chloroform anaesthesia cannot be too slow.

(2) *Insufficient anesthetic* to dull the efferent stimuli from the part operated on causing reflex vaso-dilation. Cardiac syncope is likely to result if the incoming stimuli are very urgent, but I have had several severe cases of vaso-motor inhibition reflexly in operations on mouth and face where the patient could not be kept properly anesthetized.

(3) *Emesis during operation*—The close anatomical relation of the cardio-depressor and vaso-inhibitory centres and the emetic centre, in the floor of the fourth ventricle, accounts fully for the close relation of their actions. Stimulation of the one causing emesis, brings about invariably stimulation of the other, causing fall in blood-pressure. This is one of the most frequent causes of shock, and one which is generally overlooked, and, under the sudden administration of more chloroform to overcome the emeses, the vaso-dilation thus induced, progressively continues.

(4) *Prolonged anaesthesia*, in any but the most sthenic patients will be liable to cause an interruption of the tonic stimuli constantly proceeding from the vaso-constrictor centre, under influences of incoming impulses from heart and viscera, and in all prolonged cases anaesthesia, some degree or other of shock is nearly always met with.

Every one will thoroughly agree with Smith that it is an emergency of the first order, especially when it begins during the anaesthesia itself (showing itself in relaxation of the sphincters, etc.) and yet, it would be difficult to find any one, who would assert, that he had ever saved a single case by the routine recognized methods of treatment, *i.e.*, hypodermics of strychnine, digitalin and intracellular infusion of salines. The reason for this failure is not hard to find.

The action of cardiac stimulants, as spartein, digitalin, strychnine, &c., is to increase the force of the cardiac systole. This systolic force is determined by the requirements of the arterial mechanism—these requirements making themselves known to the cardiac muscle, by the volume of blood within the ventricles, by the quality of that blood, and by the pressure of closure of the auriculo-ventricular valves. These requirements are communicated by way of the endocardium to the cardiac ganglia, and cardiac muscular contraction is modified accordingly. The condition of shock or collapse presumes a low blood-pressure and diminished quantity of blood in the ventricles. This demands (apart

from the condition of the coronary arteries) a weak cardiac systole. Cardiac stimulants increase this systole without increasing blood-pressure, and so more and more of the blood, which is available for the systemic, and especially the cerebral circulation, is driven by every cardiac contraction, to join the irrecoverable residue and mass of blood in the splanchnic area, and aggravation of the clinical symptoms results. I have seen this many times—the injection of the strychnine—the almost immediate slowing and sighing of the respiratory movements, from the exaggerated deficiency of blood in the brain—and death has begun.

The injection of digitalin is still more to be deprecated as it stimulates the vagal centre and cardiac inhibition before the muscular tissues.

Intracellular transfusion at such a critical stage is futility itself. Osmosis has practically ceased, and lymph circulation is stagnant, and long before the swellings of fluid, injected under the skin, by the patient but unscientific operator, have disappeared, the patient will be dead. So much for the text-book remedies.

The suggestion of Major Smith regarding the use of opium as a routine treatment will not, I think, be very generally agreed to. A very careful discrimination of cases ought to be made, and where the inhibition of the vaso-motor centre has been brought about by nervous efferent impulses, there is no doubt that opium and its alkaloids are second to none in their therapeutic value—as in—

Traumatic shock—The vaso-constrictor centre is paralysed by impulses coming in from the injured part, and vaso-dilation results, as a protective measure. Opium deadens the centres of reception of these impulses, and, thus, a barrier in the reflex arc is interposed.

Concussion—Opium here rapidly restores consciousness and controls vomiting, by not allowing the vital centres to receive the stimuli coming in from other centres, which they might misinterpret, as coming in from the skin surface or from the viscera.

Post-operative shock, where laceration of tissue has been great, as in double amputation, excision of mamma, or excision of joints, etc. The action of opium here resembles its action in traumatic shock.

Abdominal cases—The bowel is so sensitive to manipulation, that a great vaso-dilation occurs in every case of abdominal section, and here is the field for the use of opium. It stimulates for a few minutes the vaso-constrictor centre and deadens the urgency of the incoming stimuli from the viscera which would, unrestrained, cause a protective vaso-dilation, which in the present condition might be serious.

Every practitioner must have noticed, in cases of congenital deficiency of "pars membranacea

septa ventriculorum," or of the "foramen ovale," the extraordinary intolerance to opium, and compared it, with the magic-like relief, in cases of sthenic hearts, which are being overstimulated by toxins from within the body, either from the alimentary canal as in duodenal catarrh, or from pneumonic or malarial infections. In the one case, the cardio-accelerator ganglia of the septa are hard at work to maintain the circulatory equilibrium, which is in danger of breaking down owing to the anatomical deficiency, and opium paralysing these centres, cardiac syncope is imminent, while in the other case the toxins circulating in the blood stream, are through the endocardium and these ganglia, keeping up muscular contractions, at too high a pressure for their serene metabolism, and opium paralysing these centres, the cardiac muscle rapidly recovers itself.

The routine administration of morphine before operation has been well recommended, and except in albuminuric and bronchitic cases I have always found it beneficial as a preliminary adjustment of the peripheral heart mechanism is ensured, which, when once established, is less likely to suddenly fail—it is useful, too, to counteract any effects of fear or reflex shock, which, we have noticed, is very common. Then opium lowers the respiratory and metabolic quotients of the cells of the cerebral centres, and enables them to be functionally active under a greatly diminished blood-supply.

In cases where the shock has begun during anesthesia, and consciousness has never returned and the patient lies absolutely comatose with the respirations becoming more and more laboured, I think the use of opium must be deprecated as here there is no reflex inhibition, but simple poisoning of the central mechanism.

Atropin—The combination of atropin ($\frac{1}{100}$ th gr) with the preliminary one of morphin, is the one most in vogue, and from the analogy of its stimulating action on the sympathetic fibres in the iris, it will stimulate these in the splanchnic area also, and by paralysing the peripheral terminations of inhibitory fibres counteract the vaso-inhibitory effects of chloroform.

Eserin (1-50 gr) —This is one of the most valuable of drugs in collapse of any kind, and I have had great benefit from its use in the collapse of dysentery, plague, and cholera, etc. Its action is extremely rapid. It stimulates the terminations of the vaso-constrictor nerves and rise in blood-pressure is established, and by stimulating the cardiac systole, that rise in blood-pressure is maintained.

Adrenalin chloride—5 m well diluted with saline injected into the peritoneal cavity or over the epigastrium will of course be a routine treatment. Intravenously a preliminary fall in blood-pressure takes place, and so intraperitoneally gives the best results.

Ergot—I have never found of any service at all as might be expected from the fact that its

action is mainly a cardiac and not a vascular one.

Hyoscyne—In the form of the hydobromide, $\frac{1}{100}$ th gr is sometimes useful in the absence of eserine or adrenalin. The brilliant results of the scopalamine-morphin anesthesia testify to the safeness of this drug in all operative procedures.

Inversion of the patient and bandaging of limbs are all useful, but no remedy compares in my experience in efficacy with the immediate intravenous injection of saline. The normal saline has always been employed in preference to other artificial sera as normal serum is isotonic with the red corpuscles and their respiratory functions will be carried on without any change in composition. The one thing which is necessary is—Volume of blood in the heart and volume in the cerebral vessels, to enable them to continue their functions, and this volume can best be supplied by injection, and so we mechanically fill up the arterial and venous systems with pints of fluid. The most pressing danger now is the condition of the heart muscle itself as a heart, whose coronary arteries have for some minutes been more or less empty owing to low blood-pressure, is not likely to be able to readily accommodate itself to contraction over a suddenly increased quantity of fluid, and syncope in diastole may result. This will be guarded against by the administration of cardiac stimulants, after the infusion of a certain amount of fluid (I generally inject strychnine after the infusion of one pint of fluid, eserine and adrenalin).

To avoid failure to find the median cephalic or internal saphenous veins in conditions of collapse I make it a routine practice to mark these with colored pencil before operation, as at this time the veins are readily seen and recognized.

In all cases where practicable the placing of a weight on the abdomen is of service during operation, not only by its pressure exerting a certain amount of reflex vaso-constriction, but by giving early warning, in encouraging the passage of flatus, of the relaxation of the sphincters and so giving one all the time possible for early stimulation in this, the most fatal, form of collapse or shock.

The necessity for keeping the patient either warmly clothed or properly covered up is too often neglected, and the lowering of vital powers is thus encouraged.

In cases where a second operation is necessary, and there has been trouble with the vaso-motor mechanism during the first, the daily administration of 5-10 grs potassium iodide is of great service in preventing the equilibrium of this mechanism being easily upset a second time.

I feel sure Major Smith has given out the true note of warning when he says the present-day

fashion of leisurely operating is the commonest cause of operation shock. The results of our advances in knowledge of operative technique have availed as nothing in successful results, owing to the lack of manual and digital skill which the practice of dissection-operation is allowing and encouraging.

A CASE OF KRONLEIN'S OPERATION FOR ORBITAL SARCOMA

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ILAH BUKSH, age 40, was admitted into the Ophthalmic Hospital, Agia, on 16th August 1906, for a prominent tumour occupying the lower and outer part of the right orbital cavity. The history given was that about two years ago he began to get pain about the right eye and the eyeball gradually seemed to become more prominent till the present condition was reached.

Condition on Admission—A big tumour can be seen pushing the right eyeball forward. It occupies the lower and outer part of the right orbital cavity, causing marked proptosis. The globe is also pushed upwards and inwards. It has come so far forward, that from above the white sclerotic of the upper and posterior convexity of the globe can be clearly seen. The skin of the lower lid and the palpebral conjunctiva are stretched over the tumour. On the outer side the tumour bulges forward, so that the skin over the outer lid is rendered tense. There is some chemosis below the globe, and two large vessels can be seen crossing the tumour. The cornea shows vascular keratitis over its lower third, probably due to exposure from inability to close the lids. The patient is suffering from much pain.

Vision—The patient can count fingers, but the fundus cannot be seen clearly, only a faint red reflex can be got.

At first sight it seemed that enucleation would be inevitable. But on careful examination, it could be seen that the globe was only pushed to one side, and was not itself involved in the growth. It was only suffering from the effects of pressure, and that some degree of vision was still present. Large though the tumour was, it was decided to try and save the globe by doing a Kronlein's operation. I was encouraged in this attempt by reading the records of cases published by Colonel Lukis (in 1905) and Major Maynard (in 1904) in the *Ophthalmic Review*.

Operation—An incision was made commencing on the temporal ridge about $\frac{1}{2}$ inch above and $\frac{1}{2}$ inch behind the external angular process. It was carried forward round the convexity of the ridge to the centre of the zygoma, going

down to the bone. The anterior edge of the skin incision was pulled a little forward, and the periosteum lining the external wall of the orbit was separated from the bone and pushed inward, and an elevator placed in the cavity to protect the periosteum and the globe. The external angular process was chiselled through at its base, and from this point a fine chisel was directed downwards and inwards towards the sphenomaxillary fissure, and the thin plate of bone chiselled through or split in this direction. The frontal process of the malar was then also chiselled through at its base, and the small piece of triangular bone readily pressed outwards. The orbital periosteum was then slit with scissors, and an attempt made to enucleate the tumour from beneath the globe and the lower lid. It, however, was too big and extended too deeply. The incision had therefore to be enlarged from its apex to the external canthus and for a slight distance across the conjunctiva. The tumour was found to extend deeply into the orbit, and it was enucleated with difficulty by the finger and a pair of blunt curved scissors held unopened. After removal of the tumour the piece of bone was replaced into its position, and the globe and surrounding tissues pressed gently back into the orbit, and the conjunctival and skin wounds closed with horse-hair, a small drape of sterile gauze being left in at one corner. The tumour was the size of a small hen's egg.

Progress of the case—The wound healed rapidly. There was a slight discharge for a few days. The chemosis of the lower lid lasted for 5 or 6 days, but yielded to incisions and pressure from small pads. The globe gradually fell into position. He was discharged on 21st September 1906. Then there was no proptosis. There was some ptosis, but the power of movement of the upper lid, which was at first nil, was gradually returning, vision was also rapidly improving, and he could recognize small articles. The corneal haziness due to exposure was clearing up. The points which seem to me worth noting are (1) That if there is any perception of vision at all and the globe is not involved, it is worth while attempting to remove a tumour from the orbit by this method. (2) The congestion of the globe (due to pressure) and the vascular infiltration of the cornea (due to exposure), which incline one to make a bad prognosis at first improve rapidly on removal of the tumour. (3) That no harm whatever results from splitting the external canthus and cutting the portion of conjunctiva near, if more room is needed. The records of this operation show that it has been done 49 times, and I publish this case to add one more to the list and to testify to its great value.

My thanks are due to Dr. C. M. De for help in the operation, for taking notes and finding out the literature on the subject.

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THE REPORT OF THE PLAGUE ADVISORY COMMITTEE

AN extra number, September 1906, of *The Journal of Hygiene* has been the medium chosen for the publication of the reports of the work done by the Plague Commission in India, which is working under the direction and advice of the Advisory Committee appointed by the Secretary of State (on the advice of Lord Curzon), the Royal Society, and the Lister Institute.

As is known, this Advisory Committee consists of Surgeon-General Bannister, C.R.E., Sir Michael Foster, Dr. Rose Bradford, Colonel D. Bruce, and Dr. C. J. Martin.

Dr. Martin has visited India and consulted on the method of investigation to be adopted with the working Commission in India. This Commission consists of Major G. Lamb, I.M.S., Captain W. Glen Liston, I.M.S., Dr. G. F. Pettie and Dr. S. Rowland, Assistant Bacteriologists at the Lister Institute, Captain J. H. Gloster, I.M.S., Dr. M. K. Pai, Dr. V. L. Mankar, and P. S. Ramchandrar and C. R. Avari, two hospital assistants.

The head-quarters of the working Commission is the Plague Research Laboratory, at Parel, the resources of which were placed at its disposal by Lieutenant-Colonel Bannerman, the Director. Since the departure of Dr. Martin from India, the direction of the Commission has been in the capable hands of Major G. Lamb.

The work so far undertaken by the Commission includes epidemiological observations in the field as well as a long and valuable series of laboratory experiments, and is being carried on both in Bombay city and in two small villages in Amritsar district.

Attention has chiefly been directed to a study of the epizootic spread of plague among rats, the precise relationship of the epizootic to the epidemic, and the modes by which the disease may be communicated from rat to man.

The present series of reports does not give the final results and conclusions of the Commission, these cannot be expected before another six months when the series of experiments, through a complete twelve-month, will be completed, but

at present we have a series of contributory investigations of the utmost importance, which consists of ten more or less connected reports, representing the joint work of the members of the Commission.

The first report consists of three parts, we may pass over the first which gives an historical account of the association of plague in rat, fleas and man, then follows an account of the experiments made regarding the transference of plague from rat to rat by proximity without contact, but in the presence of fleas, these experiments follow and confirm the admirable work done at Marseilles by Gauthier and Raynaud. A full description is given of the methods used in these experiments, and the result is that in twenty-one experiments out of 38 (55 per cent.) healthy rats living in flea-proof cages have contracted plague in sequence to receiving fleas collected from rats dead or dying of septicæmic plague in another cage. The possibility of the rat-flea (*P. cheopis*) carrying plague from one rat to another is therefore demonstrated directly.

Part III is devoted to the details of experiments to determine the relative importance of the Indian rat-flea (*P. cheopis*) and of actual close contact in the absence of fleas in the dissemination of plague from man to man. Guinea-pigs and monkeys were used in these experiments which were carried out in special godowns or huts devised for the purpose by Lieutenant-Colonel Bannerman and Captain Liston. The following is a summary of the conclusions to be drawn from the results of these experiments —

- (1) Close contact of plague-infected animals with healthy animals if fleas are excluded, does not give rise to an epizootic among the latter.
- (2) Close contact of young, even when suckled by plague-infected mothers, does not give the disease to the former.
- (3) If fleas are present, then the epizootic, once started, spreads from animal to animal, the rate of progress being in direct proportion to the number of fleas present.
- (4) An epizootic of plague may start without direct contact of healthy animals and infected animals.
- (5) Infection can take place without any contact with contaminated soil.
- (6) Aerial infection is excluded. Guinea-pigs suspended in a cage two feet above the ground did not contract the disease, while in the same godown those animals allowed to run about and

those placed two inches above the ground became infected (Fleas could jump into the lower cage and not into the higher)

Having thus definitely shown by the above series of experiments, most ingeniously conceived and carried out, that the infection of plague can be conveyed from animal to animal by means of the rat-flea, the next part of this report details some observations which go to prove that in a plague-infected house the infection may be due to the presence therein of rat-fleas

In the course of these experiments it was found that plague houses which have been disinfected by the ordinary means still contained fleas in large numbers (an average of 40 fleas per house), and further no less than 29 (nearly one-third) of these "disinfected" houses were infective for guinea-pigs allowed to run free in them, the situation of the bubo in these animals was usually in the cervical region, in three other instances fleas transferred from plague-infected rats found in houses were able to transmit the disease to healthy animals in flea proof cages in the Laboratory. Moreover fleas, caught on guinea-pigs in plague-infected houses, were found capable of giving plague to fresh animals in the Laboratory

Again, in 42 experiments two animals, one protected from fleas by means of wire-gauze and the other not protected, were placed side by side in a plague house, both were protected from soil infection and from infection by contact with animals outside, but both equally subject to "aerial infection." None of the protected animals were infected, whereas four of the unprotected died, and on them fleas were found. There again the bubo was in the cervical region

Again, animals protected from fleas by having around their cages a broad layer of "tangle foot" (a sticky substance used to catch flies) and placed in plague-infected houses do not catch plague but control animals not so protected, in 24 per cent of cases developed the disease

A reference to the full report is necessary for the reader to fully appreciate the magnificent work therein recorded, we at present can only refer to the experiments on rats, fleas and other animals, we must reserve for further consideration the other subjects dealt with in this report

In our Special Plague number (July 1906) we quoted largely from the previous work of Capt Glen Liston in which he enunciated, and we may

say, popularised the rat-flea theory of plague. It must be a source of great gratification to him, to Major Lamb and then able co-workers in the Laboratory that the very complete and ingenious series of experiments now recorded have confirmed in a very striking way their former views. It is obvious that plague problems must now be looked at from the rat-flea point of view, and though doubtless there will be some who will find objections to this theory, still we must confess that if "not thoroughly proven" as Dr Ashborton Thomson has said, it is very nearly so.

We hope this valuable report will be circulated broadcast throughout India. It is valuable not only for the facts and experiments it contains, but as an example of the good work which a body of experts can produce when they work together harmoniously, and with the single end in view of getting at the truth

Current Topics.

RAT-FLEAS

A VERY timely and useful note appears in the Special Plague number of the *Journal of Hygiene* by the Hon N C Rothschild on the species of fleas found on rats, *Mus rattus* and *Mus decumanus*, in different parts of the world. This question has now become as important in preventive medicine as a knowledge of the various species of mosquito, and much more work is needed in the bionomics of fleas before it can be said that we know enough about them.

Ceratophyllus fasciatus is the flea usually found on *M. decumanus* in Europe, and the common house-mouse, *mus musculus*, occasionally harbours it, though its usual flea is *Otenopsylla musculi*. As *Mus rattus* is a rare animal on the British Isles, Mr Rothschild has not had opportunity to examine many, but as usual found its flea to be *C. fasciatus*.

The commonest flea in warm countries is *Pulex cheopis*, it was formerly called *P. pallidus* by Taschenberg in 1880. The flea described by Triaboschi as *P. murinus* is identical with the Indian rat-flea *P. cheopis* (Rothschild). The flea described in connection with plague outbreaks in Sydney and Brisbane by Tidswell and called *P. pallidus* is now shown to be identical with *P. cheopis*, also Rothschild finds that the ship rat-fleas described by Gauthier and Raynaud are really *P. cheopis*. It also appears that the flea called by Heizog *P. philippinensis* is identical with *P. cheopis*, and many specimens of this flea have also been received from South America.

P. cheopis is by far the most common rat-flea in India though occasional specimens of *Ceratophyllus fasciatus* have been secured

In conclusion, Mr Rothschild says that (except in Northern and Central Europe) *Pulex cheopis* is the commonest rat-flea and in some localities is almost the only flea to be found on rats. This then is the flea which we are chiefly concerned with as regards plague in India.

THE PUNJAB LUNATIC ASYLUM

THE second triennial report on the Punjab Asylum was submitted by Captain Robertson-Milne, I.M.S., in the absence of the permanent Superintendent, Major Ewens, on furlough.

There is much of interest in this report. The female section was opened in October 1903, and the Asylum has accommodation for 8 Europeans, 458 Natives, and 144 native women and 10 children. On the question of the relative prevalence of insanity among men and women in the Punjab Captain Robertson-Milne writes as follows —

"Contrary to what obtains in Europe and elsewhere, insanity would appear to be much less common among the women of India than among the men. The reasons for this are probably that the stresses attendant on parturition are less felt than by women living under the more artificial conditions of Western civilisation and, secondly, that there is as yet an almost entire absence of any addiction to alcohol, hemp-frug preparations or opium on the part of the women of this country. In the case of only one woman a history of bhang and spirit drinking was suspected but could not be proved. Among women the causes of mania appear to be chiefly domestic and social troubles of melancholia, grief at the loss of near relatives,—the connection of the epidemics of plague to this in both sexes is interesting. These two classes comprise about two thirds of the female patients, the remaining third being chiefly constituted by epileptics and imbeciles.

"Compared with the men, the percentage of recovery among the women is low, in spite of the fact that under present circumstances they are better looked after than the men. The absence of acute forms of insanity due to drugs among women is to a certain extent explanatory of this."

Many improvements are still needed and one under consideration is this part of the asylum.

The male asylum has accommodation for 8 European patients and 458 male Native patients, but this has proved insufficient, and as Colonel Bate says the extension of the asylum is a most pressing need.

On the subject of criminal lunatics Captain Robertson-Milne has the following interesting remarks —

"Criminal lunatics are still treated in this institution along with non criminals. I have represented this matter officially, for I am of opinion that criminal insanies should be retained in a special institution by themselves. India is, I may say, backward in this respect, for even a comparatively young administration like that of Egypt is in possession of a special asylum for criminals. The complete and absolute separation of criminal from non criminal insanies is especially necessary in this country when we consider that 70 per cent of all criminal lunatics in India have either committed or attempted murder. Of the male criminal lunatics in this asylum 66 per cent have actually committed murders. The proportion of male criminals to non criminals in the asylum is one to four among the women it is one to eleven. There is distinct but not, as yet, marked ten-

dency to the malingering of insanity by criminals, and the attention of all Superintendents of Jails should be drawn to this fact."

On the causation of insanity among males the following remarks may be quoted —

"Among men, the predominating causes of insanity are, as a reference to Table VII will show, charas smoking and bhang drinking. Major Ewens has pointed out in an interesting paper in the *Indian Medical Gazette* that, as a cause of mania, indulgence in Indian hemp is responsible for, at least, one fourth of the cases of mania admitted here, and were we to obtain more perfect records with our patients, the proportion would be higher. Cases have been admitted during the past year which demonstrate that single bouts of bhang drinking or charas smoking in persons who have not been previously addicted to these habits or who have not been able to indulge in them for a considerable time, will induce attacks of most acute mania, and that prolonged indulgence unquestionably will cause chronic mania. The extent to which these habits prevail among the general population is small. The difficulty of placing restrictions on the manufacture of these preparations is enhanced by the fact that the plants grow wild all over the country and the deleterious products can be simply concocted."

We may also quote the remarks on sickness among the patients, it is satisfactory that during the triennium there were no suicides.

The diseases contributing most largely to the sickness rate are fevers, chiefly malarial, and intestinal disorders, such as diarrhoea and dysentery. The ingestion of earth and filth by chronic maniacs induces a state of enteritis which is intermittently acute consequent on this a profound anaemia results, but contrary to what one would expect, it is apparently not, as far as researches have gone at present, associated with ankylostomiasis nor with any particular degree of helminthiasis. These cases of anaemia are very intractable, the habit of eating mud, once formed, is exceedingly difficult to curb, the patient thus affected rapidly succumbs as a rule to any such intercurrent affection as pneumonia.

Dysentery, pneumonia and tuberculosis of the lungs have been responsible for the larger number of the deaths. Tuberculosis is not uncommon it begins insidiously and it is only by carefully checking the patients' weights every month that its early presence can be detected, once the patient is definitely attacked, the progress of the disease is rapid. Special provision for the isolation of tuberculous patients is one of the features of the contemplated extension."

We hope to publish in an early number a description of the proposed new Central Hospital for the Insane, which is to be built at Ranchi for Bengal.

INTESTINAL AMCEBÆ

WE quote the following from *American Medicine* —

"Formerly it was thought that amœbæ occurred in the intestine only in dysentery. Craig and others have pointed out that a harmless form to which the name amœba coli is given occurs frequently in healthy people, a pathogenic form, the cause of amœbic dysentery, is absolutely distinct, this receives the name amœba dysenteriae. Infection is frequently mixed. The stools resulting from a fairly stiff saline purgative are more likely to show the parasite."

The following are the main points of distinction —

	Amœba Coli	Amœba Dysenteriae
Size	Average 25 μ diameter	Somewhat larger, average 35 μ
Protoplasm	Ectoplasm clear and less refractive than endoplasm, outline indistinct.	Ectoplasm granular and outline of amœba distinct
Vacuoles	Infrequent.	Common
Nucleus	Always clear	Rarely seen
Foreign Bodies	Rarely contains red blood corpuscles	Often contains red cells, crystals and bacteria
Motility	Sluggish	Active
Reproduction	By (a) Fission, and (b) Encystment with formation of 8 amœbas in cyst	(a) Fission (b) Budding with extrusion of part of nucleus

The writer lays stress on the difference in motility in diagnosis. The amœba stains with Leishmann's stain

SPIROCHÆTAL INFECTIONS

The following very interesting note is from a paper by Novy and Knapp in *Journal of Infectious Diseases* (May 1906)

"(1) *S obermeieri* belongs to the bacteria, and not to the protozoa

"(2) In onset blood, kept *in vitro*, it may be maintained alive for forty days, whereas in decline blood, owing to the presence of a germicidal agent, it rapidly dies out

"(3) Man, monkeys, white mice, and rats, tame and wild, are subject to infection. The first three are subject to relapses, the latter are not

"(4) All attempts at cultivation have proved unsuccessful

"(5) A powerful germicidal body is present in decline and in recovered blood, notably in blood of hyperimmunised rats. This body does not originate after the blood is drawn, but exists within the living animal

"(6) An immunising body is also present, and is probably distinct from the germicidal agent

"(7) Pfeiffer's phenomenon can be demonstrated *in vitro* and *in vivo*. In the peritoneal cavity of hyperimmunised rats the spirilla are killed almost instantly, after which they are taken up by the macrophages or large mononuclear cells

"(8) Active immunity follows from the infection. By successive injections of spirillar blood this immunity can be increased to a remarkable degree

"(9) Passive immunity can be imparted by injections of recovered or hyperimmunised blood

"(10) Both active and passive immunity may last for months

"(11) Hereditary immunity can be obtained, and is probably the result of infection *in utero*

"(12) Preventive inoculations can be successfully made in rats, mice and monkeys

"(13) Infected rats, mice, and monkeys can be promptly cured by injection of hyperimmunised blood. Subsequent relapses, if any, can be prevented by curative doses of blood

"(14) The preventive dose should be about ten immunity units per 100 grams body weight

"(15) The curative dose is about five immunity units per gram body-weight

"(16) A solid basis is thus established for the prevention and cure of relapsing fever in man

"(17) Agglutination of spirilla occurs *in vitro* and *in vivo* under the influence of recovered or hyperimmunised blood. To a slight extent it occurs during crisis

"(18) The agglutination, germicidal and immunising properties of recovered blood can be used in the sero-diagnosis of relapsing fever, also for the identification of spirilla

"(19) *S obermeieri* can be made to pass through a Berkefield filter

"(20) The tick fever of Africa is distinct from the relapsing fever of Europe. Its cause is *S autoum*

"(21) The spirillum of the relapsing fever of Bombay is apparently different from *S obermeieri* and *S duttoni*

"(22) The evidence points to the existence of a group of relapsing fevers

"(23) True spirilla occur in the stomach and intestines of insects

"(24) The demonstration that *S obermeieri*, *S duttoni*, and *S gallinarum* are bacteria and not protozoa, means that many, if not all, of the other spirochaetes belong to this same group

"(25) The difference in number and arrangement of flagella may lead to a division into subgenera

"(26) The transition of spirillar diseases by insects, and the congenital infection of mammals and eggs of insects, are properties which, up to the present, have been regarded as characteristic of protozoa. These properties are now known for the first time to be shared by this group of bacteria. Yellow fever presents a marked analogy to the spirillar infections, and it is not improbable that the cause of this disease will be found to belong to this group of organisms"

PYORRHOEA ALVEOLARIS

THE importance of this well-known condition of the gums has often been insisted upon in these columns, and there can be no doubt that such a state of oral sepsis cannot but be harmful. We therefore reproduce from the *Practitioner* a useful note on its treatment —

This affection, which is frequently known as Rigg's Disease, consists of inflammation of the margins of the gums, associated with a discharge of pus, or mucus, which comes from the tooth alveoli. In some cases, the discharge comes up from alongside the roots of the teeth. The process is preceded by an excessive deposit of tartar upon the exposed and non-exposed portions of the teeth, beneath this, bacterial infection occurs, the inflammation then spreads along the periodontal membrane so that pus may be squeezed up by pressing upon the gums. As a result of this inflammation of the gums (gingivitis) the gum tissue may shrink, and the alveolar border of the jaw becomes atrophied. As a result of this, the roots of the teeth become exposed, and the teeth become loosened and finally drop out. The breath of the patient is foul, and, as a result of swallowing and absorbing so much septic material, chronic dyspepsia, as a rule, follows, and later the patient is very likely to suffer from chronic gastric ulcers, or appendicitis. As a result too of toxic materials having been absorbed, the patient is liable to attacks of neuritis, and various types of anaemia, but more particularly the primary pernicious anaemia

The treatment should consist of having the teeth thoroughly freed from all tartar, and the gums gently manipulated, so as to squeeze out all pus from them, and from the various pouches and pockets around. Astringents and antiseptics should be applied, one of the best of which is peroxide of hydrogen, which should be applied to the exposed mucous membrane, and to the various pockets and pouches in which the pus has collected. Some surgeons advocate the local application of tannin and eucalyptus oil once or twice daily. The successful result of this treatment is that the teeth may be saved, and that the patient's general health will slowly improve, because septic intoxication is now prevented. In the worst cases, however, it is necessary to remove the affected teeth. From what has been noted here with regard to this disease, it will be readily understood how important it is to make patients understand the necessity of daily brushing the teeth, and of keeping the

whole buccal cavity as clean as possible. If there is no tartar about the teeth, there can be no pyorrhœa alveolaris, and, after all, many diseases, some of previously obscure origin, have more recently been traced to oral sepsis. The following mouth-wash may be used with advantage —

R Potassii Chloratis	3ij
Glycerini Boracis	3v
Aq Rosæ	ad 3v
M Ft Lotio	

If the patient has spongy gums, which are liable to bleed readily, Whitla recommends the following mouth wash —

R Tinct Myrrhæ	3ss
Tinct Kramerie	3ss
Tinct Cinchonæ	3ss
Tinct Catechu	3ss
Eau de Cologne	5i

M A large teaspoonful in a wineglass of water, to be used as a mouth-wash frequently.

Barney Yeo recommends the following as an anti-septic and soothing mouth wash for adults —

R Potassii Chloratis	gr lxxx
Extracti Opii Liquid	3ii
Aquæ Lauraceras	3i
Decoct Hordei	ad 3viij
M Ft Lotio	

Or the following —

R Acid Salicylicæ	gr xxxij
Spiriti Vini Rectif.	3iij
Aq Camphoræ	ad 3viij

M Ft Lotio

(Dissolve the acid in the spirit and then add the water)

THE SERUM TREATMENT OF DYSENTERY

The following is a synopsis of a paper by L. Vaillard and C. Dopter in the *Annales de L'Institut Pasteur* —

"Vaillard and Dopter state that the serum of horses immunized against the bacillus of dysentery possesses antimicrobial and antitoxic properties which render it useful in therapeutics. This serum is entirely harmless for man, but is proving to be almost specific in the treatment of bacillary dysentery. It has no effect on any other variety. They claim that it arrests both the infection and the intoxication and insures rapid recovery, putting an end at once to all the intestinal disturbances. Its effects are more striking the earlier it is used, although it has proved effectual even as late as the sixteenth day. Prolonged and chronic dysentery is also amenable to this serum treatment. These results were practically constant in 96 cases of severe dysentery treated with the serum alone, the number of stools ranging from 16 to 288 a day. The amount injected ranged from 20 to 100 c.c., and the injection was sometimes repeated after twenty-four hours, and again a third time in the most threatening cases. The Shiga-Kruse bacillus had been used to immunize the horses, but the serum proved equally effectual against this and against the Flexner bacillus. The curative action of the serum is so prompt and certain that its prophylactic use seems hardly necessary."

This is of considerable importance, especially to medical officers in charge of jails, especially in view of the recent deputation of Capt Foster, I.M.S., to specially study jail dysentery. The first thing to be settled is the proportion of cases of dysentery found in jails, which are bacillary and how many are amœbic. No doubt the

above results are excellent, but dysentery in jails when promptly treated from the beginning with the salines has a case death-rate as low as under one per cent, it is far otherwise with so-called chronic or relapsing dysentery, or with the virulent form seen in some districts.

We look forward with hope and expectation to the results of Capt Foster's researches.

TRANSMISSION OF PATHOLOGICAL SPECIMENS BY POST

As some of our readers have occasion often to send to England various Pathological Specimens, the following revised regulations issued in London may be of interest —

The Postmaster General has recently revised the regulations governing the transmission by post of deleterious liquids and substances sent for medical examination or analysis, and on and from the 1st proximo such specimens may be sent by Letter Post, without registration, by qualified medical practitioners and qualified veterinary surgeons under the following conditions —

(1) that they are addressed to a laboratory or institute, public or private, or to a medical practitioner or veterinary surgeon within the United Kingdom,

(2) that they are enclosed in a receptacle hermetically sealed, which receptacle must itself be placed in a strong wooden, leather, or metal case, in such a way that it cannot shift about, and with a sufficient quantity of some absorbent material (such as sawdust or cotton-wool), so packed about the receptacle as absolutely to prevent any possible leakage from the package in the event of damage to the receptacle,

(3) that they are conspicuously marked "Fragile with Care," and bear the words "Pathological Specimen," and also the signature and address of the medical practitioner or veterinary surgeon who sends them.

The packets must on no account be sent by *Parcel Post*. Any packet of the kind found in the *Parcel Post*, or found in the *Letter Post* not packed and marked as directed, will be at once stopped and destroyed with all its wrappings and enclosures.

Any person who sends by post a deleterious liquid or substance for medical examination or analysis otherwise than as provided by these regulations is liable to prosecution.

It is recommended that if receptacles are supplied by a laboratory or institute to medical practitioners or veterinary surgeons, they should be submitted to the General Post Office, in order to ascertain whether they are regarded as complying with the regulations.

The London School of Tropical Medicine is attracting in an increasing degree Indian Medical Service officers at home on furlough, and I.M.S. men have taken high place in the examinations for the Diploma of Tropical Medicine. To show that the certificate is not obtained without good work we may mention that of 60 men who worked at the school during the past year only ten obtained this, and four of these were I.M.S. men, and two belonged to the United States Army Medical Department.

CAPTAIN J. G. McNAUGHT, R.A.M.C., in a note in *R.A.M.C. Journal*, records some experiments

which show the action of cold tea on B typhus. This organism was found in greatly diminished numbers after four hours' contact with cold tea, and after twenty hours it could not be recovered. This fact is of value as cold tea has often been recommended as a drink to be carried in their water bottles by soldiers on active service.

THE foundation stone of the "Sir William Moore operating theatre" the new adjunct to the J J Hospital, Bombay, was laid by H E Lord Lamington on September 25th, 1906. This new theatre is the outcome of the liberality of Lady Moore, widow of the late Surgeon-General Sir William Moore, K C I E, who entered the Indian Medical Service in 1852 and was appointed Surgeon-General to the Government of Bombay in 1885. The foundation stone was laid with full masonic honours.

AT the same time the foundation stone was also laid of the extension of the C J Ophthalmic Hospital, Bombay, which on an appeal by Major Herbert, F R C S, I M S, the Superintendent, Sir Cowasjee Jehanji generously gave Rs 3,000.

Reviews

Genito-Urinary Surgery and Venereal Diseases—By J WILLIAM WHITE, M D, and EDWARD MARTIN, M D. Sixth Edition. J B Lippincott Co. Pp xxiv+1092. 300 Engravings and 14 coloured Plates.

A TREATISE on a special subject which has reached its sixth edition in nine years requires but little recommendation to add to its popularity. In the present edition the authors have brought their subject thoroughly up to date in every respect, and have laid especial stress on the most recent and useful methods of treatment. The authors point out that, in America, the perineal operation for prostatectomy finds more favour than the transvesical route, which has been followed in England by such excellent results at the hands of Freyer, and they devote more space to the consideration of the former than of the latter operation. The book is well and freely illustrated, among the coloured plates being a very good one of the *Spirocheta pallida* and *Spirocheta refringens*.

Diseases of the Nose and Pharynx.—By JAMES B BALL, M D (Lond). Baillière, Tindall & Cox. Demy 8vo, pp xi+388. Illustrations 78. Price 7s 6d net. Fifth Edition.

THAT Dr Ball's book has reached a fifth edition is clear evidence of the popularity it has attained. The present edition contains all that is of value among recent contributions to the

diagnosis and treatment of diseases of the nose and nasopharynx, and the subject is treated in a concise and practical manner, with a due sense of proportion. It can in short be thoroughly recommended as a text-book to all who are interested in this special subject.

Adenoids.—By WYATT WINGRAVE, M D. Baillière, Tindall & Cox. Medical Monograph Series, No IX. Crown 8vo, pp viii+128. Illustrations 32. Price 2s 6d.

THE author is to be congratulated on the amount and the practical nature of the information regarding adenoids that he has included in this small volume. Special attention has been paid to anatomy and morphology, and the clinical aspect of the condition, especially with reference to its rôle in obstruction of the upper respiratory tract, is well depicted. The diagnosis and treatment, as well as the difficulties and complications that may arise therein are also fully discussed, and it is clearly shown that adenoids are not always what they seem. Finally, Mr Hotten George has contributed a special chapter on anæsthetics.

Altogether the book may be thoroughly recommended to the general practitioner and the specialist alike as a complete and succinct exposition of the subject, and it is a notable addition to the Medical Monograph Series.

Problems in Animal Metabolism. A course of Lectures given in the Physiological Department of the London University at South Kensington in the summer term, 1904.—By Dr J B LEATHES, Lecturer in Physiology, Medical School of St Thomas' Hospital. Pages 205. Publishers John Murray, London, 1906. Price 7s 6d net.

THIS course of lectures is the latest addition to the list of books Mr John Murray is publishing under the authority of the London University.

The lectures are intended for students of medicine who have already had the opportunity of learning the essential facts in physiology, and they are planned to foster, in those studying the practice of medicine, an interest in the efforts of others who study the theory, and to keep alive the faith that among the theories of to-day lie the foundations of the practice of to-morrow. Dr Leathes points out that the study of animal metabolism is daily becoming less the sum total of chemical changes in the body, and more the study of the individual chemical reactions, the items that go to form the final sum.

The book is composed of a series of eight lectures. The usual classification is followed, carbohydrates, fats and proteins, two lectures being given up to the discussion of each one on the anabolism and one on the catabolism. Besides these there is an introductory lecture and a final one dealing with the metabolism of cyclic formations.

A series of very difficult questions are raised and discussed in a clear manner, and Dr Leathes shows a wonderful grasp of the subject which, when all is said and done, is still perhaps the one subject in physiology which we know least about. On reading lectures such as these our ignorance of the chemical changes which go on within the body is forced on one. The outside fringe of the subject is scarcely touched on yet, and it will be a very long time before any great advance in our knowledge can be expected. It is for this reason that we welcome this study of metabolism as the impulse to investigation comes as often from an insight into the aims that direct and sustain the labours of others, as from the most lucid exposition and the most judicious selection of accredited dogma.

Eyesight in Schools.—By C. C. CALEB, M.B., Lahore. Lahore Mufid-i-Am Press, 1906.

THIS admirable little book is the outcome of a letter addressed by Dr Caleb of Lahore to the Director of Public Instruction, Punjab, in which attention was drawn to the situation which was being treated in consequence of the serious and marked increase of short sightedness among the pupils at various kinds of schools in the Punjab. This book has been written to explain the cause and dangers of shortsightedness among school-boys, and it has been adopted by the Punjab Text-book Committee.

The book begins by giving in as clear language as is possible an account of the eye and of errors of refraction, and other defects of eyesight. A very interesting and useful chapter is given on ocular hygiene, in which the school building, the school rooms, the desks and the lighting are discussed. The information here given, though not new to a medical man, should be carefully studied by school-masters and all others connected with Indian schools. The dangers of badly constructed desks and seats are pointed out and illustrated by diagrams, adapted from Risley's book.

We can strongly recommend this useful book. It should be in the hands of civil surgeons, and if school inspectors and civil magistrates would study it, much could be done. We would call attention to the useful remarks on the popular fallacies about myopia and on the prejudice which exists among Indian parents to their children wearing glasses, a prejudice which can only result in harm to the boy or girl.

Carcinoma of the Rectum.—By F. SWINFORD EDWARDS. Baillière, Tindall and Cox.

THE publication of experience always may be useful, and it is a harmless vanity which makes some men desire to see themselves in print. On these grounds we are able to understand and approve the publication of this unpretentious addition to the already voluminous literature of

carcinoma. It is nothing more than a record of forty cases, of the technique adopted by the author and the results obtained. There is nothing original in the technique and as not more than eighteen months have elapsed in each case, the results are not of much value. We have no doubt that the friends of the author will be glad to see the neat booklet which his publishers have produced, but it would have been better for the public had he withstood temptation for some while longer.

Modern Dietetics in the Causation of Disease.—By SIM WALLACE. Baillière, Tindall and Cox.

ANYONE who stimulates thought should be looked upon as a benefactor of the public. The author of this interesting and suggestive series of essays is one such. A dentist of some distinction himself it is not to be wondered at that he is interested in the causes of the decay that is so common in the teeth of the present generation. But Mr Wallace directs his attention not so much to the adult as to the infant, and therefore the main portion of this booklet is concerned with the dieting of children. Mr Wallace is convinced that the sloppy and mushy diet that is in vogue for children of tender age is directly responsible for the inadequate development of their maxillæ and of the decay of their teeth. To put his argument crudely, he holds that teeth were developed for a purpose, and therefore maintains that the child that has cut its front teeth should rightly be given sugarcane to bite at, and that the older child should instead of minced meat and custard pudding be fed on slabs of flesh that he would be obliged to gnaw at and on pudding of some leathery variety. Some sort of evolutionary reasoning is made responsible for this diet, which the author has had the courage to put into practice in his own family with eminent success. We congratulate the youngster on having come safely through the ordeal of a more primitive diet, such as we may suppose prevailed in the stone age, but we would ask his father whether the degeneration of the teeth of this generation, a degeneration which has not been of sudden but of gradual development, may not be attributable to causes other than those he sees. Is it not possible, for example, that the nervous strain of a higher civilization resulting as it has done in a higher nervous development, should have been accompanied by a degeneration of the alimentary system in capacity for dealing with the coarser foods of an earlier age. Is Mr Wallace prepared to dispute that the human race tends to become edentulous as a necessary consequence of its greater cerebral development? But whether he be or not we are not prepared on his solitary experiment to believe that it is either wise or desirable to adopt a similar diet for all children. We are glad, however, to be able to commend his essays to the attention of our readers.

A Text-book of Human Histology, including Microscopic Technic—By Drs A. A. BOHM and M. VON DAIRDOFF, of Munich, and G. CARL HUBER, M.D., Professor of Histology and Embryology in the University of Michigan, Ann Arbor. Second edition, thoroughly revised and enlarged. Handsome octavo of 525 pages with 376 original illustrations. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Flexible cloth \$3.50 net.

THE "Text-book of Histology" by Bohm and V. Dairdoff is well-known in the German edition, and is admitted to be one of the most practically useful books on the subject ever written. The excellence of the text and illustrations of the German edition, attested by all familiar with the work and the cordial reception which it had received from both students and investigators, justified the belief that an English translation would meet with support from American and English teachers and students.

That this hope has been fully justified is shown by the fact that since the first edition of the English translation, two reprints have been required, and now a revised and enlarged edition has been published.

In this second American edition Dr Huber has retained in general the same arrangement of the subject-matter as presented in the former edition, and has added much useful matter, the practical results of his own extensive experience in histology. Extensive alterations have been made in the chapters dealing with general histology, cognizance being taken of the recent additions to our knowledge of the ultimate structure of tissues and organs. Recognition has also been given to the results obtained by the use of precise methods of plastic reproduction. Mazarski's observations on the form and relationship of the ultimate divisions of the tubular systems of many of the more important glands have been embodied.

There is an addition of some forty pages and the illustrations have been increased from three hundred and fifty-one to three hundred and seventy-seven, for convenience in the laboratory, it has been bound in flexible cloth.

We consider the present revised edition to be one of the very best practical books of histology at present to be had, giving the more recent work in a very readable form and including all the newest methods of technic. The introductory chapter on microscopic preparations and the articles at the end of each chapter on the technic of the particular organs or tissues described are very good and form a valuable asset of the practical usefulness of the book.

We have nothing but praise for the way in which the publishers have done their share of the work of production, the illustrations and the general turn-out of the book reflecting the greatest credit on all concerned. The book can be thoroughly recommended to all interested in histology and histological technic.

A Text-book of Pathology—By JOSEPH MCFARLAND, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia, Pathologist to the Philadelphia Hospital and to the Medico-Chirurgical Hospital, Philadelphia. Octavo volume of 818 pages, with 350 illustrations, a number in colours. W. B. Saunders, 1904. Cloth, \$5 net, Half Morocco, \$6 net.

THIS is a handsome volume profusely and well illustrated. The author having had thirteen years' teaching experience has written this book to illustrate especially the principles of pathology as required for the higher degrees of medicine. In order not to omit anything and yet to keep the volume within reasonable dimensions, he has very wisely adopted the expedient of placing the less important matter in smaller type, which may be omitted at a first reading or by those preparing for only qualifying examinations. A perusal of the work has convinced us that the author has succeeded in compiling an admirable text-book of pathology, which may be used with advantage by all classes of students.

The volume is divided into two parts, the first 360 pages being devoted to general pathology, and the latter half to special pathology. In the first part both the pathology of nutrition, including the infiltrations and degenerations and also the section on progressive tissue changes, including tumour formation, are particularly well done and excellently illustrated. The section on parasitism is also more complete than in other text-books on pathology, illustrations of malarial parasites and their development in the mosquito, of amœbæ, pyrosoma, trypanosoma, and of the flies which carry some of these parasites being given. For the student in the tropics it would have been an advantage to have had coloured illustrations of the malarial parasites. The rôle of the amœbæ in the production of liver abscess is recognised in this work.

The special pathology commences with blood, which is very well written and illustrated with a number of valuable coloured drawings. This half of the work appears to be very complete and up-to-date, the smaller type having been freely used in referring to the rarer forms of disease. The descriptions of pathogenic organisms related to the various diseases is also placed in small type, but these sections cannot be omitted by any student. Taking the work as a whole, we think it is an advance on previous text-books of pathology in the English language, and can confidently recommend it to those in practice as well as to students.

Eye, Ear, Nose, and Throat Nursing.—By A. EDWARD DAVIS, A.M., M.D., and BEAMAN DOUGLASS, M.D. With 32 illustrations. Pages xvi+318. Price, \$1.25 net. F. A. Davis Company, Philadelphia, 1905.

THIS is a useful manual written for nurses, but likely to be of service to students and practitioners also. It is divided into three parts.

first, nursing of eye diseases, second, nursing of ear diseases; and third, nursing of nose and throat diseases

Careful and detailed instructions are given as to the preparation of the patient, generally and locally, for the different operations, and stress is rightly laid upon the all-importance of surgical cleanliness. We can hardly agree with the authors in saying that 'the good results depend fully as much upon the intelligent and painstaking care of the nurse as upon the work of the physician himself,' though had they said 'nearly as much' we should have agreed without hesitation. The importance of having well-trained nurses in eye, ear, nose and throat cases can best be appreciated by those who, like most surgeons in India, have had to treat such cases without as well as with such nurses. Some of the functions here assigned to the nurse are more often, in British hospitals at any rate, carried out by the house surgeon. We refer to the selection of the necessary instruments. The preparation of the various antiseptic and sterile solutions and dressings is given, but more detail would have been desirable. The instructions regarding diet after nose and throat operations are useful. After staphyloscopy no food is given for three days after operation, even water being forbidden. Nutritive enemata are resorted to where hunger has been keen. After tonsil or adenoid operations large mouthfuls (of liquids) are better swallowed than sips. Ice-cream is very suitable. Ice or cocaine may be used to relieve pain if extreme—ice preferably—as cocaine destroys the desire for foods.

Gargles are regarded as useless in adults and impossible in children.

In the local treatment of diphtheria the use of calomel fumigations is advocated for young children. The blanket covering the child is raised into a sort of tunnel by means of sticks arched across the bed (or table) and then fifteen grains of calomel are sublimed inside the tent by heating on a metal pan over a spirit lamp. The vapours are inhaled by the patient who lies inside the tent. This fumigation is carried on for fifteen minutes, and is repeated every two hours on the first and second days, every three hours on the third day, every four hours on the fourth day, and after that, three times a day.

There is naturally some overlapping in the book, e.g., the sterilisation of the hands is described in more than one section. But this is no real drawback to what is a very useful and practical guide to the nursing of eye, ear, nose and throat cases.

Medical Society.

MEDICAL SECTION, ASIATIC SOCIETY OF BENGAL

The second meeting of the Medical Section of the Asiatic Society of Bengal met in the

Society's House, 57, Park Street, Calcutta, on Wednesday, November 14th.

There was a large attendance of members and the interest taken in the discussions showed that this section was filling a long-felt want in Calcutta.

Major D M Mon, I.M.S., opened the proceedings by exhibiting several clinical cases and reading notes of their histories. There were two cases of operation for gall-bladder abscess and an interesting discussion ensued on the 'ideal operation' and on the question of removal of the inflamed gall-bladder or drainage. Dr Caddy and Major O'Kinealy being the chief speakers. Major Mon's other case was one of removal of a large polypoid mass from the lower part of the sigmoid flexure. The patient, now a healthy comfortable man, was shown to the meeting and the large tumour exhibited.

Capt J W D Megaw, I.M.S., read a very interesting paper which we hope to publish in full, on a year's experience of malarial fevers at the out-patient rooms of the Medical College Hospital. He gave a very complete analyses of near 400 cases in which the diagnosis was proved by the finding of the malarial parasites. We refer our readers to the paper itself, as it cannot well be here summarised. The discussion took a curiously practical turn, little or nothing was said of the incidence of malarial fevers in Calcutta, though this was referred to in Captain Megaw's paper, and we have been told on good authority that the endemic index of malaria in Calcutta is *nil*. In the discussion in which Major Maynard, Dr Caddy, Dr Gaith, Major Harold Brown, Captain Leicester, Captain D McCay, Major O'Kinealy, Dr Hossack and others took part, attention was chiefly given to the use of quinine, and some very practical and interesting remarks were made. Most of the speakers gave their experience of the hypodermic method and most were in favour of it though it had its drawbacks. Captain Megaw, and in this he was confirmed by Major L Rogers, had stated that in his experience quinine 10 grains three daily *by the mouth* was the best way of giving this invaluable drug and that he had noticed that absorption was slower and the results slower when given hypodermically. This was a somewhat novel view, but apparently it has much to support it. It was also clearly elucidated that in using quinine hypodermically, first, asepsis is essential, secondly, the ordinary sulphate of quinine should not be used, and, thirdly, that the injection should be deep into the muscles, that is, intramuscular rather than subcutaneous. Captain Leicester expressed a strong preference for the hypodermic method in cases where pregnancy existed, and Dr Caddy called attention to the use of quinine in rectal injections thrown high up.

After this Major Leonard Rogers gave a lantern slide demonstration of the fever charts of the short fevers of Calcutta. This was most

interesting, and the lecturer was able to demonstrate a large variety of short fevers as seen by him in his methodical two years' examinations of all fever cases at the General Hospital and also cases met with in Lahore and at Bareilly which he had visited for studying these cases.

These charts, taken every four hours, showed clearly the difference between malignant and benign tertians, quartan and other fevers. Some 30 cases of quartan infection were referred to by Major Rogers and Capt Megaw, which is interesting in view of the reputed rarity. The quartan infection is certainly not so common in Calcutta, and as the infection is usually double, the resulting chart looks like intermittent or quotidian but the parasite is quartan. This is the explanation of the statement of the late Dr. Crombie that he had only seen two quartans in all his experience in Calcutta. Major Rogers then took up the question of the diagnosis of the fever he has described under the provisional name of "Seven-day Fever." Of the existence of this seven-day fever as a clinical entity there is now no doubt. It is apparently unknown up country, but is certainly common and probably has been common in Calcutta, among both Europeans and natives for many years. Capt Megaw has recently (*Indian Medical Gazette*, October 1906) maintained that this fever is Dengue, and on this point an interesting discussion arose which, owing to the late hour, had to be postponed till the next meeting—second Wednesday in December, i.e., December 12th.

Current Literature.

SPECIAL SENSES

Rhinosporidium Kinealyi.—At the meeting of the Laryngological Society of London in April 1903, Major O'Kinealy, M.S., showed microscopic sections of a case of localised psorospermiosis of the mucous membrane of the nasal septum. The patient from whom the specimen was obtained came under observation at the Medical College, Calcutta, about May 1894. In Maj. O'Kinealy's description of the patient's condition we find "a small vascular pedunculated tumour, about the size and shape of a large pea, was seen projecting into the vestibule of the left nasal fossa. It was a freely moveable painless growth with all the appearances of a papilloma, and was attached by a short pedicle to the mucous membrane at the anterior and upper part of the cartilaginous septum, being entirely confined to that region."

Major J. C. Vaughan, M.S., the Professor of Pathology at the Medical College, at that time made the Pathological examination.

He attributed the growth to "a chronic slow inflammatory process due probably to the irritation set up by the presence of, and by the continuous growth of, numerous cyst-like bodies which are seen scattered in the epithelial and sub-epithelial tissue. These cyst-like bodies form at once the most remarkable feature."

The cyst he describes as "a symmetrically rounded cavity bounded by a clear hyaline wall and filled with small cells or spore-like bodies."

(1) The hyaline cyst wall is a "clear membrane highly refractile and under oblique illumination shows

a striation of its substance, the striae being concentrically arranged.

(ii) The cyst contents is composed of symmetrically rounded ovoid bodies of an average diameter of 0.005 mm. Each cell of sporule consists of a granular central material surrounded by a delicate bounding membrane.

At the December meeting of Laryngological Society of the same year, Major O'Kinealy was able to exhibit drawings of other cases of this condition through the kindness of Major F. I. Drury, M.S., and Lieutenant Colonel Bomford, M.S. Since the original case about seven or eight others have been seen at the Medical College, most of them by Captain T. B. Kelly, M.S., to whom was due the credit of recognising the disease by its clinical appearances.

Such is a short account of the discovery of this interesting condition as set forth in the "proceedings of the Laryngological Society of London, 1903."

In the *Quarterly Journal of Microscopical Science*, December 1905, E. A. Minchin, M.A., and H. B. Fantham, B.Sc., A.R.C.S., deal in an exhaustive manner with the detailed structure of the parasite and discuss the affinities of the parasite with other sporozoa and its position in the class. These observers propose for the parasite the generic name *Rhinosporidium*, on account of its peculiar habitat and they name the species after its discoverer, Major O'Kinealy. Minchin and Fantham place the position of the parasite in, or close to, the sub-class Neosporidia of the sporozoa. They conclude that the *Rhinosporidium* is an amebic form which shows marked affinities with the typical Neosporidia and also with the simpler Haplosporidia.

A further study of this interesting condition will be found in the June No. of the *Journal of Pathology and Bacteriology*, 1906, by Dr. J. M. Beattie, Edinburgh University.

The material, on the study of which Dr. Beattie's article is based, was obtained from Dr. Nair of Madras—all his patients were from the small Native State, Cochin, on the West Coast. The detailed description given by Dr. Beattie is very much the same as that given first by Major Vaughan and afterwards by Minchin and Fantham; we notice that in two instances Dr. Beattie confirms Vaughan's original views regarding the structure which were not admitted by Minchin and Fantham, the first of these is the presence or absence of a pore in the cyst-wall, which the original observers stated to be present, but Minchin and Fantham could find no trace of this, the other point on which there was a difference of opinion was with regard to the striation or non-striation of the cyst wall. Dr. Beattie again confirms Vaughan's original observation of its presence, the striation being well shown in specimens stained with hæmatoxylin and gamsa combined. With regard to the classification of the parasite Dr. Beattie's specimens—shown to Minchin, who agreed with the opinion formed from their structure by Dr. Beattie, seem to be closely related to the sarcosporidia, but at present the place in the sub-class must be left undetermined.

Cases of *Rhinosporidium Kinealyi* are not exceedingly uncommon in the larger hospitals of Bengal, and it should be possible to clear up the different points of obscurity regarding the histological appearance of the parasite and to determine its proper position among the sporozoa.

MEDICINE

RECENT ARTICLES ON PLEURAL EFFUSION

1 **Physical Signs of Pleural Effusion**—By WILSON O. BRIDGES, M.D. (*The Journal of the American Medical Association*, 28th May 1904)

2 **The Indications for Paracentesis Thoracis**—By BYRON BRAMWELL, M.D. F.R.C.P. (*Clinical Studies* April, p. 280)

3 Radioscopic and Radiographic Appearances in Pleurisy, with especial reference to the upper limit of Pleural Effusion — By J. F. HALLS DALLY, M.B., B.C., Cantab., &c. (*The Lancet*, 27th February 1904)

Bridges begins by investing on the fact that pleural effusion frequently does not exhibit the classical signs. In order to facilitate diagnosis in these anomalous cases, he calls attention to two signs of pleural effusion not found in most text books, and points out variations from the typical signs which he believes are more common than generally supposed, and which are responsible for many errors by those inclined to hard and fast rules. The two signs mentioned as not well known are —

(i) *The intercostal phonation phenomenon* of Weiz and Stiller. In the normal chest of those not obese it will be observed that when the person observed speaks short words, especially if he close the nostrils and cover the mouth, there is distinct elevation of the intercostal spaces, especially noticeable where they are widest in the lower latero anterior part of the chest. This is the result of wave currents, carried down from the glottis to the lungs which are expanded and bulge the intercostal spaces. When the pleura contains fluid these waves are communicated from the lungs to the fluid, and by that means to the spaces. When the lung contiguous to the chest wall is solid, this will not occur.

(ii) *The phrenic shadow test* of Litten. In the normal chest of those not obese but capable of taking deep breaths, with the patient lying with his feet to a good light and with all side and cross lights cut off, the observer standing beside the patient with his back to the light will notice with each deep inspiration, a narrow shadow starting from the 7th rib in the anterior axillary line, and descending obliquely towards across the 8th and 9th ribs. It is equally noticeable on the two sides and occasionally in the epigastrium. It is due to "receding of the diaphragm from the ribs during inspiration" and indicates "normal relation of the lungs and diaphragm to the chest wall and normal junction. Its absence signifies the opposite." It is present in pleural effusion so soon as there is sufficient fluid to alter the normal relationship between lung, diaphragm and chest wall.

The fallacies in the ordinary signs are chiefly due to the displacement of the apex or border of the heart by hypertrophy, the fact that vocal fremitus is normally more marked on the right than on the left side, and that it may be felt even over a large effusion particularly in children, to the presence of bronchial breathing, whispering pectoriloquy, and exceptionally of moist râles over an effusion, and to the impossibility of sometimes evacuating fluid, except through the largest aspiratory needle, or even through a large trocar and cannula.

Byrom Bramwell quotes conclusions formed by Dr. Garland as the result of a series of experiments and observations which are, that when fluid appears in the pleural cavity it first accumulates in the outer and posterior part, and that the lung as a whole recedes before it. The result is that the upper limit of dullness is sigmoid, lowest at the middle line in front and behind, and highest at the outer and posterior part. The area of resonance between the upper limit of dullness and the mid line behind, is Garland's triangle. This sigmoid curve persists so long as there is any elasticity left in the lung, that is so long as the intrapleural pressure is negative. It is not till the amount of fluid is considerable that the intrapleural pressure becomes positive and the lung is subjected to injurious pressure. Urgent symptoms, such as cough, dyspnoea, orthopnoea, a small weak or irregular pulse, cyanosis,

faintness are then usually present. Almost the whole abrading function is thrown on the opposite lung, and in consequence of the compression of the lung on the affected side, the vessels of the sound lung have to accommodate more than the normal amount of blood. The result is its engorgement and oedema, and distension of the right heart. The left heart receives a lessened quantity of blood and the consequence in the systemic circulation is arterial anaemia and venous plethora. The latter is increased by twisting and constriction of the inferior cava, due to displacement of the heart. The indications, for paracentesis are (i) positive intrapleural pressure, (ii) urgent symptoms come when this pressure is negative (these last may occur only on exertion, and this is particularly so when the effusion is double), whatever the stage of the disease or the amount of effusion.

Positive intra pleural pressure is indicated by (i) the absence of the sigmoid curve and Garland's triangle referred to above. Garland's instructions in defining this are (i) to percuss lightly, (ii) to percuss at right angles to the spinal column (iii) to make the patient take a few deep breaths before percussion is practised, so as to fully inflate the lung between the spine and fluid. This sign presents fallacies in two directions. pleuritic adhesion and emphysema or cirrhosis of the lung, interfere with its production, it is absent in some case of acute effusion in which the lung is apparently normal and more frequently in small chronic effusions in which the elasticity of the lung and diaphragm is impaired, and in the other direction it may be present in certain enlargements of the liver, particularly those due to abscess and hydatid cyst of the upper part of the right lobe. The other indications of positive intra thoracic pressure are (i) extensive dullness pointing above the third cartilage when the patient is sitting, (ii) disappearance of sternal resonance above the level of the fluid, (iii) disappearance of Traube's triangle of resonance between the dullness when on the left side, and the margin of the ribs, (iv) great displacement of the heart, often accompanied by a systolic basic murmur due to stretching or bending of the aorta and pulmonary artery, (v) great enlargement of the thorax with widening of, and rarely fluctuation in, the intracostal spaces.

Halls Dally's article is likely to be of increasing value in India in proportion to the increase in the present number of effective Röntgen Ray installations. He concludes that acute dry pleurisy coming on for the first casts no shadow, but that it is accompanied by impaired movement of the diaphragmatic shadow on the affected side.

In examining for pleurisy with effusion, he continues, the chief points to note are — (1) The height of the shadow thrown by the fluid on the affected side, the contour of the upper margin of the fluid, (3) whether or not the outlines of the ribs can be distinguished, (4) the position of the heart, and (5) the movement of the diaphragm if this is visible. His conclusions are — (1) That serous effusion throws a light shadow usually with a well defined curved upper margin, a purulent effusion throws a dense or even opaque uniform shadow, that the level of the fluid changes with the position of the patient unless (a) the quantity of fluid be great, and (b) the fluid be encysted by adhesions, that the shadow is homogeneous and in the case of serous fluid increases in density from above downwards but without being dense enough to obliterate the rib outlines, while in the case of purulent effusions it is dense enough to obliterate them, that other conditions being equal the heart is displaced more when the effusion is left sided, and that however far the heart is displaced to the right in most cases little alteration takes place in the position of the apex relatively to the base, that a somewhat triangular shadow, not normally visible, above and continuous with the shadow of the heart and pericardium is cast by the mediastinum which is displaced by the lateral pressure towards the healthy side of the thorax.

In attempting to explain cases in which results obtained by dorsal percussion do not correspond with those of radioscopy, he seems to us to give insufficient prominence to the fact that in the former, information as to the immediately underlying lung is obtained, while in the latter the shadow thrown by fluid in front of, mingles with that of fluid behind, the lung, and the total result is a combination or average of the two

C L

Correspondence.

IRRIGATION IN CATARACT EXTRACTION

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—I have read with deep interest Major Elliot's article in the June "Gazette" on "Irrigation Cataract Extraction" and his criticism of my article describing a new syringe for "Intia Capsular Irrigation" which appeared in the April number

I can endorse practically every thing Major Elliot says on the value and efficiency of irrigation in the removal of cortex, replacement of iris, etc., after extraction of the lens. Regarding irrigation in very nervous patients, I desire to say that the more I resort to irrigation the more I feel free to use it in such cases. Yet I would scarcely think it safe to advise those whose experience is comparatively limited in cataract extraction to make a free use of irrigation in this class of cases. For it has happened in my own hands, and I have seen it happen more than once in the hands of my associates, that with the syringe in the anterior chamber and a sudden upward motion of the eyeball has caused rupture of the posterior capsule and hyaloid membrane followed by escape of vitreous. If this accident occurs before all the cortex has been gotten rid of, uitis is practically certain to follow, especially if the cortex is of a stringy consistency and considerable has been left behind. My inference to "fiddling" of course could not apply to operators with the experience and skill of Major Elliot. My suggestion was merely to safeguard an excellent procedure in the hands of the comparatively inexperienced by suggesting by then doing too little rather than to attempt too much at first. Descemetitis I am well aware not infrequently results from too small an incision and forceful expression of the lens in cases where irrigation is not resorted to at all, that it also frequently occurs as a result of the syringing *per se* I am perfectly certain.

As I have said I personally had but one case in about four hundred (now over 600) in which the Descemetitis after syringing failed to clear up, but I have two other cases in the hands of others where prolonged irrigation cause a Descemetitis which after several weeks showed no tendency to clear. I think, therefore, that it is better to leave a tag or two of stringy adherent cortex (for this is the kind most difficult to displace than to subject the anterior chamber to prolonged manipulation, especially if such cortex is eccentric and the major central portion has already been successfully removed).

With regard to the syringe itself, I think, it is largely a matter of what one is accustomed to. My syringe was suggested mainly to obviate the necessity of an extra assistant and to simplify irrigation generally. This I believe it does. Major Elliot speaks of the "double task" of watching the nozzle while squeezing the bulb in the use of my syringe. I would reply to this by saying that after one uses the syringe for a while he does not think of the bulb any more than he does of regulating the pressure by squeezing the clamp in the McKeown instrument, and the bulb has the advantage of serving as a very convenient handle for the instrument. The syringe has the additional advantage not mentioned in my former description of it, *viz*, that it can be used as a suction apparatus as well as an irrigator. Often by releasing the pressure on the bulb a fragment of cortex can be dislocated by suction action, this proceeds and then washed out. Displaced iris too in the same way can often be repositioned. I practically always use the syringe instead of spatula in the reposition of prolapsed iris and find it invariably satisfactory.

It saves the use of spatula or scoop for this purpose. Our plan of preparing the eye for operation has been practically the same for five years and differs but little from that employed by Major Elliot excepting that we begin irrigation with bichlorid solution, 1 in 4000 swabbing the conjunctival sac with a cotton swab held in fingers (the hands having been sterilized as for major cutting operations) and complete the cleansing by washing out with sterile boric acid lotion. We use small rubber syringes immersed and kept in the bichlorid solution and used only for this purpose.

We seldom find it possible to keep patients with chronic conjunctival and lachrymal inflammation for the long periods

mentioned by Major Elliot as in vogue in the Madras Ophthalmic Hospital.

I can heartily endorse what Major Elliot says about early examination of the eye following extraction. Our practice is to examine every case after 24 hours by raising the lid sufficiently to ascertain that all is going well.

Daily sterile dressings are employed for four days as rule, when an eye-shade is substituted. If there is any mucoid or mucopurulent discharge present at the first or subsequent dressings, drop of a twenty grain protargol solution is dropped into the inner angle of the eye at each dressing. Only dressings sterilized in an autoclave are used. The conjunctival sac is not irrigated excepted occasionally where the discharge is free.

At a later date we hope to present a series of cases in which irrigation has been employed giving details and results. Only comparatively recently have we adopted a uniform method of tabulating operations and results in cataract operation with special reference to the irrigation.

We usually extract all hypermature and immature cataract in the capsule, and as we acquire additional experience our vitreous losses in such cases have considerably diminished, but as yet we do not see our way clear to adopt this method as a routine practice on all forms of cataract.

MIRAJ

W J WANLESS, M D

APPENDICITIS IN INDIANS

To the Editor of "THE INDIAN MEDICAL GAZETTE."

SIR,—In the September number of the *Indian Medical Gazette*, Major Gabbett asks for the experience of Medical Officers on the question of appendicitis amongst natives during the last six months. I have operated on two such cases. Both were males, one being a sweeper, aged 24 years, the other, a military police Sepoy, aged 32 years, a Mahomedan. The first case was admitted with an abscess in the region of the appendix. The abscess was opened, and a few days later the sloughing remains of the appendix was irrigated out of the wound, the patient made a good recovery. The second case was one of chronic appendicitis, the man having been ill off and on with symptoms of mild appendicitis for two years. The appendix was cut down on and found matted by old inflammatory adhesions behind the caecum. The appendix itself was constricted near the caecum, but dilated beyond and contained pus. After a little trouble the appendix was isolated and removed. The patient made a good recovery and was discharged, having lost all his former symptoms. Though I quite agree with Major Gabbett in thinking appendicitis a rare disease amongst natives, I fancy a good number of cases could be recorded from the experience of the large hospitals in India if an enquiry was made.

MAYMIO

Yours, &c,

C BARRY,

Major, I M S

[We understand that a considerable number of operations for appendicitis are yearly done in Indian hospitals, but they are not always returned under this heading in the Hospital Annual Returns.—Ed, I M G.]

PERMANGANATE TREATMENT OF HYDROPHOBIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I have read with unabated interest Dr McCabe Dallas's description of the successful treatment he had adopted to cure dogs bitten by other rabid dogs. I have no doubt that possibilities of the permanganate treatment are great, but there is one omission in Dr Dallas's account which detracts much from the value of the treatment if it is meant to serve as a guide to the public, he omits the procedure he has adopted to secure bitten dogs, so as to render them perfectly harmless to handling them and thoroughly bathe them in the 1 per cent. solution, to search out all the wounds, and to rub in dry permanganate powder with a cloth button. If Dr Dallas would be good enough to supply the above information through the medium of your Journal, he will not only confer a great boon on the public and help to solve a difficulty which now puzzles the medical and veterinary faculties.

I hope to write again on this subject for a further elucidation on certain points.

MADRAS

22nd September 1906 }

Yours, &c

VITALIS LEWIS

FISH, MOSQUITOES AND LIME

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The more our knowledge is extended on the subject of the destruction of mosquitoes the better for all concerned, so I send you a few notes on an experiment I once made for the destruction of mosquitoes and their larvæ by fish and lime. If you should consider these notes of any value, I trust you

will give them publication in your Gazette for the benefit of the public, for I found my experiment to be thoroughly successful.

It is well known that in all tropical countries, stagnant water, wherever found, is a sure breeding place for mosquitoes. I once occupied a house in the Punjab which was infested by these pests. On searching for their breeding place, I found it in an open cistern which had been built to contain water for the garden. The cistern was about eight or nine feet long by five broad and five deep, and the water in it was quite brown from mosquito larvæ. To destroy these I placed in the cistern about fifty or sixty of the little silvery fish, named "Chilwa" (*Cheela Argentea*) which I netted in a neighbouring stream. In a week or so these fish had completely cleared the water of larvæ, and not only that, but every mosquito which sat on the water for the purpose of depositing its eggs was instantly devoured.

The Chilwa is a surface feeder, and is one of the most eager fly takers in India. A mosquito hovering over the surface of the water even is jumped at and unerringly secured at a distance of an inch or so before it can settle.

This fish is easily procured all over India. In the Deccan, and in the south of India it is known by the name of "Roop-chāl." If these little fish were introduced into patches of stagnant water which cannot easily be drained, and protected there would be an end to anopheles in that neighbourhood.

I made a further search in the same compound to discover, if possible, more breeding places. I soon found these in two rows of fifty water *gurrals* which had been placed on each side of the house as fire buckets, for the house had a thatched roof.

A good handful of lime in each *gural*, well stirred up, not only immediately killed all of the mosquito larvæ, of which there were hundreds in each pot, but most effectually prevented the mosquitoes from using the *gurrals* as breeding places again. After all this my house became quite free from mosquitoes.

I think the Chilwa fish should certainly be used as mosquito destroyers in the way I have described, but they should be protected from net men and anglers, for they are easily caught with the simplest tackle.

For the destruction of mosquito larvæ in *gurrals*, fire buckets, and such like, a good handful of lime is more efficacious, instant in its action, and certainly cheaper than kerosene oil. The lime water would not readily evaporate, whereas kerosene oil is volatile, costly, and requires frequent renewing. In the case of fire buckets lime water would be harmless, but water mixed with even a small quantity of kerosene oil would probably increase the flames, instead of guarding them.

I was led to try the Chilwa experiment by having often seen these fish, which I know to be surface feeders, rising at, and taking mosquitoes, especially about sunset when these insects swarm, and with regard to the lime it is a matter of common knowledge that fish and minute animal life cannot exist for a moment in lime water.

KULU (PUNJAB)
September 29th, 1906

Yours, &c,
W OSBORN,
Lieut. General, I.A.

ABSCESS OF SCROTUM MISTAKEN FOR STRANGULATED HERNIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Seeing Major Gabbett's record of such a case in the *Indian Medical Gazette* for August 1906, I thought the following similar case might be of interest.

Patient, aged 48, admitted to Neyoor Mission Hospital, March 27th, 1906.

History—He said that twelve years ago he noticed something coming down into his scrotum and going up into his abdomen. Native treatment failing to give relief, he came to this hospital three years ago, and refusing operation got a truss, which relieved him till it got out of order. Twenty days ago the swelling came down but never returned, and the pain has increased.

Examination—He can only walk with the aid of a stick and with much pain. Right side of scrotum is swollen to about the size of a mango fruit extending up to inguinal canal, hard and tender to the touch. Tongue very furred, patient being ignorant and dull history of bowels and vomit indefinite. Pulse 90 and small in volume. Temperature normal.

Operation—Chloroformed and semi-circular incision made over back of the swelling, the subcutaneous tissues were dense and fibrous and parts not normal, incision was deepened cautiously till pus exuded. Finger inserted found an abscess cavity reaching down into scrotum and up to inguinal canal where the parts were firmly matted together and the opening closed so that no entrance could be gained to abdominal cavity, there was also a passage inward to the root of the penis. The cavity was scraped with the finger, flushed out two drainage tubes inserted and the incision partly closed and gauze stuffed around the tubes. Dressed as usual.

After treatment—Discharged in four weeks with a small sinus which was daily attended to in the out-patient department until healed.

Remarks—The fibrous formation at the upper end of the abscess had performed a kind of radical cure of the hernia, tightly shutting off the abdominal cavity, and preventing the bowel from coming down. Careful questioning of patient and friends after the operation elicited a history of intermittent fever with rigors 20 days before he came. He was seen in August last with the hernia apparently beginning again, but refused operation.

Yours, &c,
LONDON MISSION HOSPITAL, } WM C BENTALL,
NEYOOR, TRAVANCOR. } L R C P & S F

THE LAST PLAGUE EPIDEMIC IN THE GIRIDIH SUB DIVISION

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—With reference to my letter on the subject of rats and plague at Giridih in the June number of the *Indian Medical Gazette*, the editor was pleased to remark "We are afraid that few will follow Assistant Surgeon S L Sugar in attributing the disappearance of plague to anything so vague as climatic influences. Something more definite is wanted."

I am again tempted to write on the subject by the publication of the admirable paper of Major S Browning Smith, I M S, on the spread of Plague in the special plague number of the *Indian Medical Gazette*. This has not only thrown a flood of light on the subject, clearing up the points which were obscure in my mind, but by the light of this paper, I can see that what seemed doubts and difficulties to me are really corroborative evidences in support of the conclusions of Major S Browning Smith, I M S. The sequence of events in the Giridih plague epidemic appears to be this.

Towards the end of July, Pachamba, a town situated about three miles from Giridih, was infected by a man carrying the infection from Calcutta. The epidemic began to spread throughout the place and the rats of the locality became infected. Naturally there was a panic and a large number of people within a short time evacuated the town. It appears that a large number of rats left the town of Pachamba about the time and came to Giridih. The evidence of the fact is that rats began to die in the town of Giridih, while plague was raging at Pachamba, but up to that time not a single case of human infection had occurred in the town of Giridih. Now how did it happen that rats remained with plague germs without communicating the disease to men? Because it was the season when the fleas decrease in number, and the rat fleas are the principal medium of communicating the disease from rats to men. Then, as I have shown in my previous paper, this curious thing happened that though the rat-fleas did not communicate the disease to men, several parts of the town became infected by men carrying the infection from Pachamba. With the advent of the season during which the fleas increase the plague spread throughout the town of Giridih in an epidemic form. The people began to leave the town and with them the rats. Then the town of Giridih gradually became rat-free and the epidemic ceased.

Now as to the evidence that Giridih became actually rat-free. The evidence is this and I think it to be a convincing one. Dr W Saise, the Superintendent of the railway colliery, began the rat-killing operation within the colliery area towards the end of November and about that time the Giridih Municipality also began the operation of rat-killing within municipality area. As far as I can remember the municipality with their utmost efforts was able to kill only 50 rats. After a time Dr W Saise consented to take charge of the operation of rat-killing in the town of Giridih. Though Dr W Saise was able to catch some thousands of rats within the colliery area, he was able to catch only a few hundreds within the municipal area. Out of the number of rats paid for by the municipality as being caught within the municipal area I know for certain, some to be brought from outside, even from some distant villages.

In my first article on the plague at Giridih, I think I was able to show that the rat killing within the colliery area had not any decided effect in checking the spread of the plague, as compared with what happened at Pachamba or at Giridih. I believe that the experience of the authorities at Rangoon was the same. Now how can this happen? Are not rats and rat fleas the principal factors in the dissemination of plague? Does it not therefore follow theoretically that the epidemic should be cut short by the destruction of a large number of rats? Yes, the contention is perfectly true. But though no rats were destroyed at Pachamba, and only a few at Giridih, yet these places became free from rats and also from plague in due course.

In conclusion, I may be allowed to point out that the following points in the article of Major S Browning Smith are supported by facts noticed in connexion with the late plague epidemic at Giridih, which have been published by me before the publication of his paper. The pages referred to

are the pages of the *Indian Medical Gazette*, which contains his article—

(1) 'The agent carrying infection from one locality to another is man' (page 218) Pachamba was infected from Calcutta by human infection

(2) "We have had instances where it seems probable that infection was actually carried by rats, migrating from one village to another," page 245 As I have demonstrated before, this actually happened at Giridih

(3) "The way in which plague spreads from village to village and from district to district, the infected area gradually spreading at its edges to involve new tracts of country shows that human communication is the determining factor in the spread of plague * * * again the inter relation of inhabitants between villages situated close together will be greater than in those widely scattered, &c" I have shown in my first paper on the subject published in the January number that the inter relation of the inhabitants between Pachamba and Giridih account for the first few cases that occurred in the town of Giridih

(4) 'With the advent of the hot weather, fleas get rapidly fewer until it seems as if they practically disappear altogether during the summer months' "The flea begins to appear after the summer rains, increasing in numbers as the weather gets cooler" "The seasonal variations of plague depend on flea prevalence" (pages 245 and 246) I have explained before how this theory helps one to understand the fact that there was a rat epidemic at Giridih, before human beings were affected for some time

(5) "If the infection has been imported fairly early in the season the epidemic will pass completely through the village and in two, three, or four months will come to an end * * * when all conditions, judging from the plague figures of the province as a whole, are most favourable to the propagation of the disease, * * * why? There is only one factor that has disappeared, the temperature is favourable, the flea is prevalent, but the village has with the death of a large number of rats and the flight of the remainder, become more or less *rat free*" (page 250) I have pointed out before that there is strong evidence that Giridih became actually *rat-free* towards the end of the epidemic

Yours, &c,
S L SARGAR,
Asst. Surgeon

MANUAL OF ASEPTIC SURGERY

To the Editor of 'THE INDIAN MEDICAL GAZETTE.'

SIR,—Will you kindly permit me space to correct certain erroneous impressions which the reviewer of a Manual of Aseptic Surgery has placed on record in your issue for November, as they are calculated to give a false idea of what is therein advocated, to any one who has not seen the book. I cannot allow them to pass unchallenged without appearing to acquiesce in their truth.

Firstly, I can hardly be expected to concur in the remark that 'the author is in favour of the modified antiseptic method,' a term which I regard as obsolete, except in its proper application to the treatment of septic conditions. Chapter IV was largely written to dispel such errors of nomenclature and to obviate the misapplication of the terms aseptic and antiseptic, so common even at the present time.

Next your reviewer takes exception to the statement that 'the dresser should rinse his hands in lotion before proceeding to the next case,' and adds that this is certainly not sufficient (to render the hands aseptic, understood). The obvious inference is that this procedure was advocated as sufficient for the purpose, which is certainly not the case and a perusal of the whole page will prove it. Taken from its context in this way the extract gives an entirely false impression, not to mention what may be found in previous chapters, more particularly in Chapter VIII where the difficulties are treated at some length. It would be as reasonable to take exception to the remark on page 160, that 'the operator and his assistant should, from time to time rinse their hands in some weak antiseptic lotion' during an operation. The great trouble with students and dressers to disabuse their minds that a perfunctory dip in antiseptic lotion renders their hands aseptic, was one of the primary reasons of the book being written at all. As to his suggested alternative, viz, the reperformance of the whole process of sterilization between each dressing, I will only put one pertinent question. Has he ever tried it?

Finally, he charges me with inconsistency in advising the use of iodoform emulsion in the treatment of psoas abscess, but on what grounds I am at a loss to discover. On the previous page the use of iodoform in the form of a powder or an emulsion, in smaller abscesses which cannot be dissected out is clearly advocated and elsewhere its mode of action and the conditions under which its use is indicated are also given.

I may add that two or three removable water taps or keys will at once remove the difficulties anticipated from the use of one only.

In writing this, I have endeavoured to avoid traversing any statement of opinion, and my only object is to disclaim those which have mistakenly (though doubtless unintentionally) been imputed to me

RAN: HI
November 13th, 1906

I am, Sir, yours faithfully,
E A R NEWMAN,
Major, I M S

ADDENDUM TO CAPT S R CHRISTOPHER'S ARTICLE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Since writing the above (*supra*, p 467) I have obtained positive results in a considerable proportion, about 30 per cent of unfed nymphs. These were a batch hatched from larvae reared from infected mothers and fed on two young healthy puppies believed to be free from piroplasma. In the gut were found very large forms, many of them nearly the diameter of a red blood corpuscle. They resembled somewhat the forms seen in the gut of the adult. Most frequently they were disposed in pairs or in groups of from 3 to 6. They lay as a rule in the protoplasm of cells quite close to the nucleus. In addition to these round forms which were very numerous, a few extremely large club-shaped forms were seen. These, though larger and much altered, are quite unmistakably the same bodies as those described above as being found in the ovary of adult ticks. Confirmation of this observation is, of course, needed before it can definitely be stated that these parasites were derived actually through the egg, but in any case, as the nymphs themselves had not fed, development had been carried over at least one ecdysis, that is from the larva to nymph.

Still, later, I have succeeded in following up the major portion of the life cycle of piroplasma and have traced it to the salivary glands of nymphs of the second generation which were about to become adults. In the salivary cells parasites resembling closely certain of the forms in the blood, but larger, are, in infected ticks, present in enormous numbers.

THE KING INSTITUTE
MADRAS,
15th November 1906

Yours, etc,
S R CHRISTOPHER, M B,
Captain, I M S

Service Notes

LIEUTENANT COLONEL H HENDLEY, I M S, Civil Surgeon, Lahore, has obtained privilege leave of absence for one and half months, with effect from the forenoon of the 16th of August 1906.

THE privilege leave for two months and a half granted to Captain C S Lowson, I M S, Superintendent, Central Prison, Ahmedabad, has been extended by two days.

HIS Excellency the Governor in Council is pleased to make the following appointments, pending further orders—

Assistant Surgeon Gajanan Chintaman Kusumbikar, L M & S, to act as Civil Surgeon, Karwar, *vice* Major S H Burnett M B, C M, I M S.

Captain T S Novis, I M S, on relief by Major Ashton Street, M B F R C S, I M S, to act as Civil Surgeon, Nasik, *vice* Major W S P Ricketts, M B, I M S.

CAPTAIN C A SPRAWSON, I M S, in medical charge of the 12th Pioneers, Jhansi, to hold civil medical charge of that district, in addition to his military duties, *vice* Lieutenant-Colonel C C Manifold, I M S, granted leave.

CAPTAIN G HUTCHESON, I M S, Civil Surgeon, Bijnor, privilege leave for one month, from the 27th August 1906.

NOTIFICATIONS granting Major C Milne, I M S, Civil Surgeon, Fyzabad, twenty one days' privilege leave, and appointing Captain F Wall, I M S, to hold civil medical charge of the Fyzabad district, in addition to his military duties, are hereby cancelled.

CAPTAIN J L MARJORIBANKS, M D, D P H, I M S, to hold charge of the office of Civil Surgeon, Nasik, in addition to his own duties, from date of departure of Major Ricketts, I M S, pending relief by Captain Novis, I M S.

HIS Excellency the Governor in Council is pleased to appoint Mr S J Meher Homji, L M & S, to be Honorary

Assistant Surgeon, Janshedji Jijibhu Hospital, for a term of one year, *vice* Mr Kallandas Jekisandas Desai, B A, L M & S, resigned

His Excellency the Governor in Council is pleased to make the following appointments, with effect from the 1st October 1906 —

Major S H Burnett, M B, C M, I M S, to be Superintendent of Mahabaleshwar

Major W S P Ricketts, M B, I M S, to be Superintendent of Matheran and *ex officio* Assistant Collector in the Kolaba District

CIVIL ASSISTANT SURGEON DALIP SINGH KATWAL, attached to the Sadr Dispensary, Bijoor, to hold civil medical charge of that district in addition to his other duties, *vice* Captain G Hutcheson, I M S, granted leave

LIEUTENANT COLONEL J M CADFELL, I M S, Civil Surgeon Moradabad, to hold visiting medical charge of the Bijoor district, in addition to his other duties, *vice* Captain G Hutcheson, I M S, granted leave

LIEUTENANT COLONEL C C MANIFOLD, I M S, Civil Surgeon, Jhansi, privilege leave for one month, from the 8th September 1906

THE eight months' combined leave out of India on private affairs granted to Captain R F Baid, I M S, is extended by four days

THE services of Major J G Jordan, I M S, are placed at the disposal of the Government of India in the Home Department

THE following notifications are cancelled —

Dated the 18th August 1906, granting one month's privilege leave to Major E A W Hall, I M S, Civil Surgeon, Sylhet

Dated the 25th August, 1906, granting six weeks' privilege leave to Mr F G Hurst, Officiating Civil Surgeon, Lushai Hills, on being relieved of his present appointment

AT examinations held at the stations and on the dates specified below, the following were successful —

No	Rank and Name		Corps	Station	Date	Subject
	*	*	*	*	*	*
	Lieutenant	Catto J	Indian Medical Service	Manipur	2nd July 1906	Urdu L S
	Ditto	Sodhi, N S	Ditto	Dibrugarh	Ditto	Ditto
	*	*	*	*	*	*

THE services of Captain C A Gourlay, M B, I M S, are placed permanently at the disposal of the Government of Eastern Bengal and Assam

CAPTAIN C A GOURLAY, M B, I M S, is appointed Deputy Sanitary Commissioner, Eastern Bengal and Assam

CAPTAIN J MASSON, I M S, made over charge of the Bankipore Jail to Major B H Deare, I M S, on the forenoon of the 24th August 1906

ASSISTANT SURGEON NIRAD CHANDRA MUKERJEE made over charge of the Motihari Jail to Captain J Masson I M S on the forenoon of the 27th August 1906

MAJOR J MULVANY I M S, made over charge of the Presidency Jail to Captain J G P Murray, I M S, on the afternoon of the 1st September 1906

LIEUTENANT COLONEL G F A HARRIS I M S, Professor of Materia Medica Medical College, Calcutta and *ex officio* Second Physician to the College Hospital, is allowed privilege leave for thirty days, with effect from the 4th October 1906

LIEUTENANT COLONEL F J DRURY, I M S, Officiating Civil Surgeon stationed at Howrah, is appointed, with effect from the 17th February 1906, to act as Civil Surgeon of the first class during the absence, on leave, of Lieutenant-Colonel J B Gibbons, I M S, or until further orders

MAJOR E H BROWN, I M S, Civil Surgeon of the 21 Parganas, is appointed to act as a Civil Surgeon of the first class during the absence on leave, of Lieutenant Colonel J French Mullen, I M S, or until further orders

CAPTAIN J C S OXLEY, I M S, holds collateral medical charge of Chinwara District, *vice* Captain P F Chapman, I M S, transferred to be Civil Surgeon, Akola

THE services of Captain A G Sugent, I M S, are replaced at the disposal of H E the Commander in Chief, with effect from the date on which he was relieved of his duties in the Jail Department, Bombay

MAJOR H BURDEN, I M S, held charge temporarily of the current political duties of the Phopawai Agency during the Agent's absence

LIEUTENANT COLONEL J SMYTH, I M S, is confirmed in his appointment as Senior Surgeon and Sanitary Commissioner with the Government of Mysore

PRIVILEGE leave for 2 months and 28 days was granted to Lieutenant Colonel J N Campbell, I M S, Civil Surgeon, Dacca, and Major E R Parry, I M S, is appointed to act as Civil Surgeon of Dacca for the time

MAJOR A R S ANDERSON, M B, I M S, on return from the Andamans, is appointed Civil Surgeon of Tipperah District

CAPTAIN E P CLEMENTS, I S M D, Civil Surgeon, Hardoi, U P, is granted 6 months' combined leave

PROMOTION EXAMINATIONS

CAPTAINS, BEFORE PROMOTION TO MAJOR ROYAL ARMY MEDICAL CORPS SUBJECTS

(For officers of the Royal Army Medical Corps only)

Books recommended, and sources from which information may be obtained —

"King's Regulations"	"Allowance Regulations"
"Regulations for Army Medical Services"	"Pay Warrant"
"Manual for the R A M C"	"War Establishments."
"Standing Orders, R A M C"	"Regulations for Supply, Transport, and Barrack Services"
"Field Service Manual, Army Medical Service"	"Infantry Training"

SUBJECTS

LIEUTENANTS, BEFORE PROMOTION TO CAPTAIN

- (i) Squad company and corps drills and exercises
- (ii) The duties of wardmasters and stewards in military hospitals and preparation of returns, accounts and requisitions connected therewith
- (iii) Duties of executive medical officers

CAPTAINS, BEFORE PROMOTION TO MAJOR

- (1) Medicine *
- (2) Surgery *
- (3) Hygiene †
- (4) Bacteriology and tropical diseases †
- (5) One subject from the following list —‡

Bacteriology, including the preparation of anti toxins	Operative Surgery, advanced
Dental Surgery	Ophthalmology
Dermatology, including venereal diseases	Otology, including Laryngology and Rhinology
Midwifery and gynaecology	Psychological medicine
	State medicine

PROMOTION TO LIEUTENANT COLONEL, ROYAL ARMY MEDICAL CORPS

Subjects

Military law (as laid down in Appendix VII (d) (ii) for captains before promotion to major) —

Technical subjects —

- 1 Army Medical organization in peace and war
- 2 Sanitation of towns, camps, transports, and all places likely to be occupied by troops in peace or war, epidemiology, and management of epidemics
- 3 The laws and customs of war, so far as they relate to the care of the sick and wounded

* To be divided into written examination, essay, and clinical cases

† Written and practical.

‡ Written, clinical or practical

§ The examination in this subject may be passed by an officer at any time after he attains the rank of captain.

4 One subject from the following list (to which additions may from time to time be made) —

- (a) Medical history of the more important campaigns *
- (b) A general knowledge of the Army Medical Services of other Powers †

Books recommended —

King's Regulations
Field Service Regulations, Part II, War Administration, when issued
Allowance Regulations
Pay Warrant.
War Establishment
Manual of Military Law
Regulations for Supply, Transport, and Barrack Services
Regulations for Army Medical Services
Field Service Manual for Army Medical Service
Manual for the Royal Army Medical Corps
Standing Orders, Royal Army Medical Corps
Such portions of works on hygiene (e.g., Notter and Firth's Theory and Practice of Hygiene, and Munson's Military Hygiene) as bear upon the practical work of an Army Medical officer (subject 3)
Army Medical Reports and Journal of the R. A. M. Corps
Organization of Voluntary Medical Aid in War
International Treatises such as Geneva and Hague Conventions
Handbook of the Medical Organizations of Foreign Armies
The Laws and Customs of War on Land, edited by Professor T. E. Holland, &c

THE services of Captain C. G. Seymour, I.M.S., are placed temporarily at the disposal of the Government of Eastern Bengal and Assam

WITH reference to the Home Department notification No. 274, dated the 16th March 1904, Major L. Rogers, M.D., F.R.C.S. (Bengal), is confirmed in the appointment of Professor of Pathology in the Medical College, Calcutta, with effect from the 17th February 1906

THE undermentioned officer has been granted, by His Majesty's Secretary of State for India, permission to return to duty —

MAJOR S. H. HENDERSON, I.M.S., Superintendent, Central Prison, within period of leave

UNDER paragraph 20, Army Regulations, India, Volume IX, Lieutenant-Colonel Edwin William Reilly, I.M.S., is permitted by the Chief Commissioner to resign his appointment of Honorary Medical Officer of the Nagpur Volunteer Rifle Corps, with effect from the 1st April 1906

MAJOR L. F. CHILDE, M.B., I.M.S., has been allowed by His Majesty's Secretary of State for India to return to duty within the period of his leave

CAPTAIN E. L. PERRY, I.M.S., has been permitted to convert the periods from the 1st February 1906 to 31st March 1906, and from 1st May 1906 to 26th June 1906, of the leave on medical certificate into "Study leave"

On return from leave, Captain Perry, I.M.S., is appointed to officiate as Civil Surgeon, Dera Ghazi Khan

ON transfer from Gujranwala, Major G. Y. C. Hunter, I.M.S., resumed charge of his duties as Superintendent of the Montgomery central jail and Civil Surgeon of Montgomery on the afternoon of the 9th of September 1906, relieving Lieutenant W. Forrester, I.S.M.D., transferred

ON being recalled from the leave granted to him in notification No. 122, dated the 21st of March 1906, as amended by notification No. 160, dated the 17th of April 1906, Major G. F. W. Baird, I.M.S., is appointed Inspector General of Prisons, Punjab, with effect from the forenoon of the 28th of September 1906, vice Major R. J. Macnamara, I.M.S., transferred

ASSISTANT SURGEON B. C. GHOSH made over charge of the duties of Superintendent of the Lyallpur district jail to Captain M. Corry, I.M.S., on the forenoon of the 15th September 1906

* The examination under these headings will be confined to subjects dealt with in such Army Medical Reports and other publications as will be notified annually, but officers may apply to be examined under 5 (c) in the organization of the medical service of any foreign Power of which they may have made a special study
† Written and practical

MAJOR T. STUART, M.B., C.M., I.M.S., made over, and Captain M. Dick, I.M.S., assumed, charge of the Rangoon Central Jail on the forenoon of the 25th September 1906

CAPTAIN L. E. GILBERT, M.B., I.M.S., made over, and Senior Local Assistant-Surgeon Maung Tha Noo assumed, executive and medical charge of the Akyab District Jail on the afternoon of the 18th September 1906

ASSISTANT SURGEON ATA MUHAMMAD, R.B., V.H.S., made over charge of the duties of Superintendent of the Dera Ghazi Khan Jail to Captain E. L. Perry, I.M.S., on the forenoon of the 20th September 1906

CAPTAIN H. H. BROOME, I.M.S., made over charge of the duties of Superintendent of the Multan district jail to Major A. W. T. Buist, I.M.S., on the forenoon of the 20th September 1906

CAPTAIN J. STEPHENSON, I.M.S., made over charge of the duties of Superintendent of the Ambala district jail to Assistant Surgeon Atar Chand on the forenoon of the 28th September 1906

CAPTAIN M. CORRY, I.M.S., made over charge of the duties of Superintendent of the Lyallpur district jail to Assistant-Surgeon B. C. Ghosh on the afternoon of the 25th September 1906

IN supersession of notification dated 21st September 1906, Captain R. F. Baird, I.M.S., Officiating Civil Surgeon, Ferokehabad, on being relieved, to officiate as Deputy Sanitary Commissioner, 1st Circle

COMMAND Order No. 518 of 1906 in so far as it relates to the appointment of Captain D. Munro Indian Medical Service, to medical charge of the 11th King Edward's Own Lancers (Probyn's Horse) is cancelled

CAPTAIN C. DYKES, I.M.S., Officiating Civil Surgeon on being relieved, from Etawah to Jaunpur

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of Bengal —

Captain M. Mackelvie, M.B., I.M.S.
Captain E. H. B. Stanley, I.M.S.

MAJOR H. G. MELVILLE, M.B., I.M.S. (Bengal), Professor of Materia Medica and Pathology, Medical College, Lahore, is granted furlough for one year, with effect from the 15th October 1906

CAPTAIN C. W. F. MELVILLE, M.B., I.M.S., is appointed to officiate as Professor of Materia Medica and Pathology, Medical College, Lahore, during the absence on furlough of Major H. G. Melville, M.B., I.M.S., or until further orders

MAJOR J. G. JORDAN, M.B., I.M.S., made over charge of the Chittagong jail to Major E. A. W. Hall, M.B., I.M.S., on the forenoon of the 11th September 1906

MAJOR E. A. W. HALL, I.M.S., made over charge of the Sylhet jail to Captain H. B. Steen, M.D., I.M.S., on the afternoon of the 5th September 1906

CAPTAIN H. A. J. GIDNEY, I.M.S., made over charge of the Dinajpur jail to senior grade Assistant-Surgeon Khierod Chandra Ray on the afternoon of the 19th September 1906

CAPTAIN W. D. HAYWARD, M.B., I.M.S., made over charge of the Rampur central jail to Captain H. A. J. Gidney, I.M.S., on the forenoon of the 21st September 1906

CAPTAIN F. NORMAN WHITE, I.M.S., is the first successful candidate for the degree M.D. (London), in Tropical Medicine

CAPTAIN T. G. N. STOKES, I.M.S., Civil Surgeon, Bilaspur, C.P., is granted one year combined leave from 21st September 1906

CAPTAIN N. E. H. SCOTT, I.M.S., took over the duties of Civil Surgeon of Jhelum from Major Ogilvie, I.M.S., on 22nd September

LIEUTENANT COLONEL J. CUNNINGHAM, I.M.S., on return from leave, was posted to Ambala as Civil Surgeon.

MAJOR E V HUGO, I M S, on return from leave, was posted to Lyallpur as Civil Surgeon

ON return from leave Lieutenant-Colonel J Sykes, I M S, is posted to Bareilly as Civil Surgeon

LIEUTENANT COLONEL J J PRATT, I M S, on return from leave, is posted to Fyzabad

CAPTAIN W B TURNBULL, I M S, is posted to Banda, U P, as Civil Surgeon

MAJOR H AUSTEN SMITH, I M S, is posted to Bahraich as Civil Surgeon

MAJOR W SELBY, D S O, I M S, is transferred from Bareilly to Sitapur as Civil Surgeon

MAJOR C MILNE, I M S, is transferred as Civil Surgeon to Gonda

MILITARY ASSISTANT SURGEON HOGAN is transferred as Civil Surgeon to Pilibhit

THE division of the Superintendentship of the Campbell Medical School, Sealdah, Calcutta, from the post of Police Surgeon, is one that has long been contemplated and has at last been carried out. Major J G Vaughan, I M S, the present Superintendent remains in charge of this large and important Medical School, and Major W D Haywood, I M S, has been transferred from Eastern Bengal and Assam to become Police Surgeon, Calcutta

MAJOR A R ANDERSON, I M S, is appointed Civil Surgeon, Rajshahi

CAPTAIN S ANDERSON, I M S, is appointed Civil Surgeon of Tippera

CAPTAIN C G SEYMOUR, I M S, officiates as Civil Surgeon, Lushai Hills

MILITARY ASSISTANT SURGEON T H BONNAR, is appointed Civil Surgeon, Rangpur

MAJOR E A. W HALL, I M S, is appointed Civil Surgeon of Chittagong

ON return from leave Lieutenant Colonel J R Adie, I M S, reported his arrival at Bombay on the 24th of August 1906, and is appointed Civil Surgeon of Ferozepore, with effect from the forenoon of the 3rd of September 1906, relieving Assistant-Surgeon Hem Chundra Ghosh

ON return from the privilege leave of absence granted to him in notification No 725, dated the 15th of August 1906, Major H Smith, I M S, Civil Surgeon, resumed charge of his duties at Jullundur, on the forenoon of the 30th of August, 1906, relieving Assistant Surgeon Kidai Nath Bhandari of the additional charge

CAPTAIN M CORRY, I M S, Civil Surgeon, Lyallpur, has obtained privilege leave of absence for one month, under article 260 of the Civil Service Regulations, with effect from the afternoon of the 17th of August 1906

ASSISTANT-SURGEON BHARAT CHANDRA GHOSH, in charge of the Civil Hospital, Lyallpur, is appointed to officiate as Civil Surgeon of Lyallpur, in addition to his own duties, with effect from the afternoon of the 17th of August 1906, *vice* Captain M Corry, I M S, proceeded on leave

THE services of Major R J Macnamara I M S, Inspector General of Prisons, Punjab, are placed at the disposal of the Government of India with effect from the date on which he is relieved of his duties

THE services of Major R J Macnamara, M D, I M S (Bengal), are placed permanently at the disposal of the Government of Madras for employment in the Jail Department, as Inspector General of Prisons, Madras

MAJOR G Y O HUNTER I M S, made over charge of the duties of Superintendent of the Gujranwala District Jail to Babu Amrik Singh, Assistant-Surgeon, on the afternoon of the 8th September 1906

ASSISTANT SURGEON BABU AMRIK SINGH made over charge of the duties of Superintendent of the Gujranwala District Jail to Lieutenant W Forrester, L S M D, on the forenoon of the 10th September 1906

CIVIL ASSISTANT SURGEON GANPAT RAI, in charge of the Sadi Dispensary, Azamgarh, held civil medical charge of that district in addition to his other duties, during the absence, on leave, of Captain J N Walker, I M S

CAPTAIN J N WALKER, I M S, Officiating Civil Surgeon, Azamgarh, was on privilege leave for twenty-seven days from 9th August 1906

MAJOR J K CROSE, I M S, Civil Surgeon, on return from leave, is posted to Shahjahanpur

LIEUTENANT COLONEL J MCCOCHRY, F R C S I, I M S (Bombay), was employed under the Government of Bombay from the afternoon of the 29th April 1905, to the afternoon of the 24th May 1905

ODDH AND ROHILKHAND RAILWAY VOLUNTARY RIFLES
Lieutenant-Colonel John Anderson, Indian Medical Service, to be Medical Officer, to complete the establishment
Dated 1st September 1906

CAPTAINS TO BE MAJORS

29th July 1906

Arthur Gwyther, M B, F R C S E
John Archibald Hamilton, M B, F R C S E Both these officers thus received 6 months' accelerated promotion

THE following officers of the Indian Medical Service having satisfactorily completed their probationary courses of instruction at the Royal Army Medical College, and at Aldershot, have been finally admitted to the service. Their commissions will bear date the 1st February 1906 —

Harry William Pierpoint.
Khandu Ganpatrao Ghai purey
William David Henderson Stevenson,
Henry Patullo Cook
Percy Strickland Mills
William James Fraser
Desmond Charles Villiers FitzGerald
Charles Richard O'Brien
Robert Siggins Kennedy
Bernard Higham
Charles Aubrey Godson
Reginald Henry Lee
Norman Halliburton Hume
Gree Edmand Malcomson
Patrick Heffernan
William Anderson Mearns
Henry Stewart Hutchison
Duncan Macdonald Cochrane Church
Robert George Gibbon Orol
Stanley Trefusis Ciump
William Barbour Alexander Kennedy Cullen
James MacGregor Skinner

INDIAN MEDICAL SERVICE—SPECIALISTS—The under-mentioned officer is appointed a Specialist in the subject noted, with effect from the date of publication of this order —

PREVENTION OF DISEASE

Major C M Moore, M D, I M S, Quetta

CAPTAIN G KING, I M S, made over charge of the Puri Jail to Assistant-Surgeon Akshay Kumar Mukharji, on the afternoon of the 12th August 1906

ASSISTANT SURGEON AKSHAY KUMAR MUKHARJI made over charge of the Puri Jail to Captain G King, I M S, on the forenoon of the 31st August 1906

MAJOR R H CASTOR, I M S, was granted by His Majesty's Secretary of State for India, study leave from the 30th April 1906 to the 11th June 1906

HIS Excellency the Governor in Council is pleased to appoint Captain W O'S Murphy, M B, I M S, to be in charge of the Observation Camp for pilgrims to be established at Perim

MAJOR B B GRAYFOOT, M D, I M S, and Captain J McPherson, I M S, respectively delivered over and received medical charge of the Karachi Prison on the 5th September 1906, after office hours

MAJOR S H BURNETT, M B, C M, I M S, and Assistant Surgeon G C Kusumbikar, L M & S, respectively, delivered over and received charge of the Karwai Prison on the 18th September 1906, after office hours

ON return from the privilege leave of absence sanctioned in Punjab Government letter No 429 L P, dated the 4th May 1906, Captain G I Davys, I M S, Assistant Plague Medical Officer, resumed charge of his duties at Amritsar on the afternoon of the 18th August 1906

41ST DOGRAS

Captain N W Mackworth, I M S, to medical charge of the regiment.

54TH SIKHS (FRONTIER FORCE)

Captain R. M. Barron, I M S, to medical charge of the regiment

7TH DUKE OF CONNAUGHT'S OWN RAJPUTS

Major F R Ozzard, I M S, to medical charge of the regiment.

19TH PUNJABS

Captain A E J Lister, I M S, to medical charge of the regiment.

11TH KING EDWARD'S OWN LANCERS (PROBYN'S HORSE)

Captain D Munro, I M S, to medical charge of the regiment

MAJOR J G HULBERT I M S., Officiating Civil Surgeon, on being relieved, from Shahjahanpur to Farrukhabad

HIS Excellency the Governor in Council is pleased to appoint Dr J H Walsh to act as Special Port Health Officer, Karachi, *vice* Captain W O'S Murphy, M B, I M S, as a temporary measure

CAPTAIN R F BAIRD, I M S, Officiating Civil Surgeon, Farrukhabad, on being relieved, is placed on special duty in connection with plague preventive measures

THE undermentioned officer has been granted by His Majesty's Secretary of State for India, extension of leave — Major J C White, I M S, Deputy Sanitary Commissioner, furlough on medical certificate for six weeks

CAPTAIN C J ROBERTSON MILNE, M B I M S, whose services have been replaced at the disposal of the Bengal Government, is placed on deputation in connection with the scheme for the establishment of a Central Lunatic Asylum at Ranchi

CAPTAIN J MASSON, I M S, officiating Deputy Sanitary Commissioner, Bihar and Chota Nagpur Circle, acted in addition to his own duties, as Civil Surgeon of Patna, with effect from the afternoon of the 18th July to the forenoon of the 24th August 1906, during the absence, on leave, of Major B C Oldham, I M S

MAJOR B H DEARE, I M S, Civil Surgeon of Champaran, is appointed, with effect from the forenoon of the 24th August 1906, to act as Civil Surgeon of Patna, during the absence, on leave, of Major B C Oldham, I M S, or until further orders

CAPTAIN A F STEVENS, I M S, Officiating Civil Surgeon, is transferred from Shahabad to Hooghly, with effect from the afternoon of 9th August 1906, during the absence, on leave, of Lieutenant Colonel D G Crawford, I M S, or until further orders

CAPTAIN C A LANE, I M S, Civil Surgeon, stationed at Purnea, is appointed, with effect from the afternoon of the 14th August 1906, to act in that capacity at Darjeeling, during the absence, on deputation, of Major F O'Kinealy, I M S, or until further orders

CAPTAIN J MASSON I M S, is appointed, with effect from the forenoon of the 27th August 1906, to act as Civil Surgeon of Champaran during the absence, on deputation, of Major B H Deare, I M S, or until further orders

CAPTAIN F A F BARNARDO, I M S, was appointed temporarily to act as a Civil Surgeon and is posted to Shahabad, with effect from the afternoon of the 6th August 1906

CAPTAIN L COOK, I M S, is appointed temporarily to act as a Civil Surgeon, and is posted to Purnea, with effect from the afternoon of the 8th August 1906

CAPTAIN J J URWIN, I M S, Officiating Resident Surgeon, Medical College Hospital, Calcutta held temporary charge of the duties of Professor of Ophthalmic Surgery, Medical College and Ophthalmic Surgeon, College Hospital, in addition to his own duties, with effect from the afternoon of the 12th August to the afternoon of the 17th August 1906

SENIOR ASSISTANT SURGEON KALI NATH BANERJI is appointed, with effect from the forenoon of the 21st August 1906, to act as Deputy Sanitary Commissioner, Bihar and Chota Nagpur Circle, during the absence, on deputation, of Major B R Chatterton, I M S, or until further orders

ASSISTANT-SURGEON NIRAD CHANDRA MURERJI, attached to the Motihari dispensary, held charge of the Civil Medical duties of the Champaran district, in addition to his own, with effect from the afternoon of the 15th August to the forenoon of the 27th August 1906

DR W FORSYTH, Health Officer of the Port of Calcutta is allowed privilege leave for one month under Articles 260 and 345 of the Civil Service Regulations with effect from the 6th October 1906, or any subsequent date on which he may be relieved

DR C BANKS, Protector of Emigrants and Superintendent of Emigration, Calcutta, is appointed to act as Health Officer of the Port of Calcutta, in addition to his own duties, during the absence, on leave of Dr W Forsyth, or until further orders

MAJOR W D HAYWARD, I M S, Civil Surgeon, Rajshahi, is granted leave for 46 days under Article 360 of the Civil Service Regulations, with effect from the 16th September 1906 or such subsequent date on which he may avail himself of it

CAPTAIN H A J GIDNLY, I M S, Officiating Civil Surgeon, Dinajpur, is appointed to act as Civil Surgeon, Rajshahi, during the absence of Major Hayward, or until further orders

- LIEUTENANTS TO BE CAPTAINS

Clifford Ailchin Gill

31st August 1906

COLONEL H R. Whitehead R A M C, is confirmed as Principal Medical Officer, 2nd (Rawal Pindi) Division

COLONEL P M ELLIS R A M C, on arrival from England, to be Principal Medical Officer, 4th (Quetta) Division, *vice* Colonel J McCloghry, Indian Medical Service, transferred to the Sialkot and Abbottabad Brigades

COLONEL H K MCKAY, O B, C I E, Indian Medical Service, Principal Medical Officer, Presidency and Assam Brigades, is transferred in the same capacity to the 7th (Meerut) Division, *vice* Colonel W E Saunders, O B, V R S Royal Army Medical Corps, deceased Brigade Staff Colonel J McCloghry Indian Medical Service, Principal Medical Officer, 4th (Quetta) Division, is transferred in the same capacity to Sialkot and Abbottabad Brigades

COLONEL J G HARWOOD, Royal Army Medical Corps, on arrival from England, to be Principal Medical Officer, Presidency and Assam Brigades *vice* Colonel H K McKay, O B, C I E, Indian Medical Service, transferred to the 7th (Meerut) Division

CAPTAIN H CROSSLER, I M S, is appointed to hold charge of the current duties of the office of His Majesty's Consul at Kermanshah Captain A B Drummond is posted as Resident in Mewar

MAJOR A L DUKE, I M S, is appointed to hold charge of the current duties of the office of Political Agent, Bikaner, till relieved by Lieutenant Colonel Stewart.

CAPTAIN E I MORGAN, I M S, Civil Surgeon, Muttra, is granted privilege leave for one month

MAJOR W VOST I M S, Civil Surgeon, is transferred from Gorakhpur to Muttra

LIEUTENANT COLONEL ROBERT COBB Indian Medical Service, Bengal, is permitted to retire from the service, subject to His Majesty's approval, with effect from the 10th October 1906

CAPTAIN LAURENCE RUNDALL, M B, Indian Medical Service, has been transferred to the temporary half pay list by the Secretary of State for India, subject to His Majesty's approval, with effect from the 15th August 1906

INDIAN MEDICAL SERVICE
Majors to be Lieutenant Colonels

30th September 1906

Robert Joseph Macnamara, M D
Herbert Wilson Pilgrim M B, F R C S
Francis Wyville Thomson, M B
Edwin Harold Brown, M D, F R C S F
Charles Norman Bensley
Selby Herriot Henderson, M B
Blenman Buhot Grayfoot, M D
David Wilson Scotland, M B
Charles Robert Mortimer Green, F R C S
Richard Henderson Cantor
Thomas Edward Dyson, M B
Edward Christian Haie
Frank Cecil Clarkson
John Gregory Jordan, M D
Herbert Mackinlay Morris
Allan Rupert Postance Russell
James Morwood M D
Frederick George Maidment
Edmund Alexander William Hall, M B

ON return from the privilege leave of absence granted to him in Notification No 791, dated the 8th of September 1906, Major A W T Buist, I M S, Civil Surgeon, resumed charge of his duties at Multan on the forenoon of the 20th of September 1906, relieving Captain H H Bloome, I M S, 27th Punjab's, of the collateral charge

ASSISTANT SURGEON AMRIK SINGH, in charge of the civil hospital, Gujranwala, is appointed to officiate temporarily as Civil Surgeon of Gujranwala in addition to his own duties, with effect from the afternoon of the 8th of September 1906, *vice* Major G Y C Hunter, I M S, transferred

INDIAN MEDICAL SERVICE—SPECIALISTS—The under mentioned officer is appointed a Specialist in the subject noted, with effect from the date of publication of this order—

PREVENTION OF DISEASE

Major F Wyville Thomson, M B, Dehra Dun

THE undermentioned officer has been granted by His Majesty's Secretary of State for India, extension of leave—

Major J K Close, I M S, Civil Surgeon, was on study leave from 1st May 1906 to 31st July 1906]

THE following promotions are announced in the *Gazette of India*—

No 364, 2nd class Senior Hospital Assistant, ranking as Jemadar, Abid Husain Khan (E) to be Senior Hospital Assistant, 1st class, ranking as Subadar, 1st class Hospital Assistant Shaikh Tajud-din (E) to be Senior Hospital Assistant, 2nd class, ranking as Jemadar, *vice* No 195, 1st class Senior Hospital Assistant, ranking as Subadar, Togh Ali, invalided, with effect from the 17th August 1906

No 434, 2nd class Senior Hospital Assistant, ranking as Jemadar, Shaikh Muhammad Ishaq (E) to be Senior Hospital Assistant, 1st class, ranking as Subadar, 1st class Hospital Assistant Muhammad Muhr din (E) to be Senior Hospital Assistant, 2nd class, ranking as Jemadar, *vice* No 189, 1st class Senior Hospital Assistant, ranking as Subadar, Shaikh Ismail, invalided, with effect from the 24th August 1906

No 361 2nd class Senior Hospital Assistant ranking as Jemadar, Kiyamud din (E) to be Senior Hospital Assistant, 1st class, ranking as Subadar, 1st class Hospital Assistant Shaikh Atar Husain (E) to be Senior Hospital Assistant, 2nd class, ranking as Jemadar, *vice* No 110, 1st class Senior Hospital Assistant, ranking as Subadar, Saiyid Mubarak Ali invalided, with effect from the 21st September 1906

The undermentioned native military pupils, having passed their final examination, are admitted into the service as 3rd class Hospital Assistants, with effect from the 1st October 1906—

No 1189, Kehai Singh, Chaudail
No 1190, Atar Singh, Chaudail

LIEUTENANT COLONEL J F SMYTH, I M S, Sanitary Commissioner and Senior Surgeon, Mysore, is granted 18 months' combined leave from 16th September 1906

MAJOR I W IRVINE, I M S, is appointed to officiate for Lieutenant Colonel Smyth in Mysore

IN supersession of the Home Department Notification No 850, dated the 6th October 1906, the services of the undermentioned officers are placed temporarily at the disposal of the Government of Bengal—

Captain M Mackenzie, M B I M S
Captain F P Connor, F R C S, I M S

LIEUTENANT COLONEL T P WOODHOUSE, R A M C, officiates as P M O, 3rd (Lahore) Division, *vice* Col Barron, on leave

THERAPEUTIC NOTES

WE have received the paper from which we make the following extracts from Dr D J Jones a medical officer who has served in West Africa and Borneo. His paper is entitled MAINTENANCE OF HEALTH IN THE TROPICS, it is too long for use in our columns, but we quote the following extracts which bear on the use of the preparation known as SANATOGEN in certain exhausting diseases. In a country where pure milk is not always obtainable the value of a preparation containing 95 per cent of casein is evident.

For residents in tropical climates suffering from general physical debility the best and most readily assimilable food is a combination of casein with glycerophosphates. This cannot be prescribed as an ordinary mixture pill or powder, but for some years past I have used the preparation known as Sanatogen which is composed of 95 per cent pure casein and 5 per cent glycerophosphate of sodium. The casein by its combination with the glycerophosphate undergoes a chemical change which renders it soluble in water and adds materially to its power of assimilation. I have used Sanatogen on a large scale and have every reason to be satisfied with the results obtained. In my paper on "Food and Feeding in Alcoholism" I have described in some detail the beneficial effects attained in many chronic cases of that condition. In neurasthenia and other allied conditions of the nervous system Dr R. J. Carter† of the Lock Hospital, London, found it increased the number of red blood corpuscles and the percentage of haemoglobin. In cases of this description recently under my care good results have been obtained. It is not uncommon under this treatment when there is accompanying anaemia for the blood count to rise from 3,500,000 erythrocytes per CMM to 4,000,000 in a fortnight and to 4,600,000 in a month, there being concurrently an improvement in the haemoglobin of 2 per cent a week. Even when there is no anaemia the influence of the Sanatogen is well marked, due, in a great measure, to the influence of the glycerophosphates on the enfeebled brain and cord. I find it exerts a tonic action in all functional disturbance of the central nervous system probably by stimulating the neurones to increased activity. There are one or two points in connection with the pharmacological action and therapeutical uses of Phosphorus and its compounds to which I would especially refer. Ringer‡ finds it useful in overtaxation of the nervous system by too arduous or too anxious work. "In these patients brain power is weakened, the mind soon becomes weary and fatigued, they are irritable and depressed and sexual capacity in many instances is much impaired."

Ringer, for example, says that phosphate of lime is "highly recommended in various forms of chronic diarrhoea and especially in that of young children to whom it may be given with carbonate of lime and lactate of iron, but Tunncliffe§ points out that the addition of calcium phosphate to the food does not increase the amount of phosphorus assimilated or retained by the child and that it does not exert any favourable influence on the assimilation of the nitrogen of the food." Clearly the phosphorus to do any good must be administered in a form in which it can be readily assimilated. It must be given as a food and not as a medicine.

These general pharmacological principles may be applied to nearly all diseases prevalent in tropical countries, and I find that my conclusions are endorsed by many leading authorities on the subject.

Diseases of the digestive organs, as Scheube and others have shown, are more frequent in the tropics than in Europe. With regard to the symptomatology and the pathological changes met with in these complaints they exhibit no material differences from those of the temperate zone, with the exception that they more frequently assume a chronic character causing emaciation, anaemia and frequently death. Their frequency is explained by the sensitiveness of the intestinal canal peculiar to the tropics and attributable to the altered conditions of the circulation and the atony of the intestinal muscles, rendering the mucous membrane of the intestine more easily affected by infectious lesions than they would be under normal conditions. Errors in diet, contributed to by the rapid decomposition of articles of food, and by the ten

Medical Press and Circular 1907

† General Practitioner 1905

‡ Handbook of Therapeutics, 13th Edition 1897

§ Concerning the behaviour in the body of certain Organic and Inorganic Phosphorus Compounds

dency to chills, furnish incidental causes. Speaking of Tropical Dysentery Schenbe* says—"Dietetic treatment is of greatest importance and should always go hand in hand with other remedies. In acute dysentery only fluid food must be taken until an improvement occurs. Boiled milk taken lukewarm is the best, and if the patient cannot take it pure, the addition of a little soda water, lime water (a table spoonful to the cup), or even a little tea, coffee or cocoa is permissible.

"Where fresh milk is unattainable unsweetened condensed milk can be given. Next to milk, gruels and farinaceous foods are recommended, also thin soup, beef tea and meat juice.

"In chronic dysentery a pure milk cure is most suitable first of all, later on its place may be taken by a digestible but strengthening diet."

It will be noted that much reliance is placed on a pure milk diet. With this I am quite in accord, but undoubtedly many chronic dysenteries are unable to assimilate the large quantity of milk, three pints or more, necessary to furnish them with the requisite amount of nourishment to maintain body weight. In these cases I find the addition of *Snatogen* useful. This is quite in accordance with the principles laid down by Sir Patrick Manson† who says—

"Were it possible it would be well to stop all food, this of course is impossible, so we make a compromise between the therapeutical indication and the physiological necessity by reducing the diet to a minimum and selecting only such foods as, while possessing considerable nutritive value, yield but a small faecal residue."

With regard to Mediterranean Fever, Malta Fever and their prototypes it must be remembered that formerly they were treated with a variety of depressing drugs such as antimony, with the result that the patient rapidly became anæmic. Fortunately rational therapeutical measures are now in vogue, and we rely to a very great extent on the judicious administration of nerve stimulants.

In *Sprie*, which is prevalent in India, China and Java and of the causation of which little is definitely known, drugs alone are of very little use, and the treatment consists of absolute rest in bed with a dietary consisting chiefly of casein and the glycerophosphates. This is better by far than milk alone for *lecithin* even in the most minute dose exerts, as Danilewsky‡ has shown, an extraordinarily favourable influence upon nutrition, its effects in this regard being catalytic or of the nature of a ferment. It must be remembered that phosphorus is contained in *lecithin* in the form of a glycerophosphate. The mixture of milk and *Snatogen* is an excellent and useful reconstituent tonic, for it contains two varieties of organic phosphorus, that contained in the glycerophosphoric acid and the proteid form in the casein. In the treatment of this disease and as a means of combating its depressing influence reliance may be placed on this regimen, combined with physiological rest. As accessory measures I have no objection to the occasional administration of a raw egg or of a little boiled arrowroot, but meat extracts and meat juices do more harm than good.

The same mode of treatment is applicable to *Beri Beri*, that curious form of multiple neuritis of unknown etiology prevalent in the Malay Archipelago in China, Japan, the West Indies and some parts of Burma. It is especially apt to prove fatal when the neuritis affects the vagus nerve giving rise to irregularity of the heart's action and breathlessness. There is no more remarkable triumph of modern hygiene than that which followed dietetic reforms at the instigation of the Javanese physicians. A remarkable diminution in the disease followed the continued use of a diet rich in nitrogenous ingredients.

The same general principles of treatment apply not only to malarial fevers, Malta Fever, *Sprie* and *Beri Beri*, but to many other diseases also.

BRITISH MEDICAL ASSOCIATION MEETING AT TORONTO, AUGUST 1906

BURROUGHS, WELLCOME & CO'S EXHIBIT

Unstinted praise has been accorded to the exhibit made by Burroughs, Wellcome & Co. at the meeting of the British Medical Association recently held in Toronto. The medical visitors manifested keen interest in the well arranged selection of the firm's products and freely expressed their gratification at the excellence of the display. The following attracted particular attention.

'**TABLOID**' PLEATED COMPRESSED BANDAGES AND DRESSINGS.—The pioneers of compressed surgical dressings. They are composed of materials of the finest quality and are very highly compressed so as to occupy the smallest possible space. Each is separately packed in an efficient protective covering which secures freedom from all contamination until required for use. A full range of these heat compact dressings is issued enabling the general practi-

tioner to carry sufficient for a whole day's practice, if necessary, in his pocket. For all purposes they are superior to the ordinary varieties.

'**TABLOID BRAND PASTILLES**—These exquisitely prepared medicated pastilles are characterised by accuracy of activity and purity of contents. A very useful selection is available, embracing all the agents usually prescribed in medication by pastille, together with some new combinations.

'**WELLCOME**' BRAND PRODUCTS.—Considerable attention was directed to the various preparations issued under the 'Wellcome' Brand—Chloroform, Standardised Liquid and Granular Extracts, Chemicals and Galenicals, etc., all of which have become well recognised as products of the highest quality.

'**WELLCOME**' BRAND DIPHThERIA ANTITOXIC SERUM and 'WELLCOME' BRAND ANTISTREPTOCOCCUS SERUM (POLYVALENT) also aroused great interest.

'**TABLOID**' HYPODERMIC CASES.—These compact outfits met with general approval, especially the various metal cases fitted with the B-W & Co. All Glass Aseptic Hypodermic Syringe. The readiness with which the hypodermic solution is prepared with 'Tabloid' Hypodermics in the barrel of the syringe and the ease with which both syringe and case are rendered aseptic were fully appreciated.

'**TABLOID**' MEDICINE CHESTS AND CASES for all purposes were shown in great variety, and among the other features of the exhibit were included a wide range of 'Tabloid' Medicaments, 'Tabloid' Ophthalmic products, 'Soloid' Equipments for bacteriological and analytical purposes, 'Enule' Suppositories, 'Keplei' Malt preparations, 'Keplei' Solution, 'Hemisine' preparations, 'Hazeline' preparations, etc.

OYLLIN SYRUP—We have received samples of this new preparation by the *Jeyes Sanitary Compounds Co., Ltd.* This syrup has been tested against a vigorous culture of *B. dysenteriae* and is reported to have a carbolic coefficient of 0.3. Thus a dose of 10 m. is equivalent to 3 m. pure phenol. This new preparation is intended for the treatment of infantile diarrhoea, and will probably be found useful in dysentery and cholera. It is pleasant to take a great point in favour of its use in infantile complaints.

Notice.

SCIENTIFIC Articles and Notes of Interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested.

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co., Calcutta.

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co., Calcutta.

Annual Subscriptions to the *Indian Medical Gazette*, Rs 12 including postage, in India. Rs 14, including postage, abroad.

BOOKS, REPORTS, &c, RECEIVED —

Morek's Further Reports
 Eyesight in Schools. Dr. C. G. (Lahore Press)
 Bataram, Vaccination Handbook.
 Sir J. A. Brunton's Circulation and Respiration (Macmillan & Co.)
 Lewis Jones Medical Electricity (5th Ed.) 12s 6d (H. K. Lewis)
 P. J. Meyer's Enlargement of the Prostate. New Ed. (Baillière Tindall & Cox)
 Cooper's X Rays in General Practice (Baillière Tindall & Cox)
 Lindsay's Diseases of Lungs (Baillière Tindall & Cox)
 Riches's Medical Diagnosis (Baillière, Tindall & Cox)
 Green's Encyclopedia Medica Vol. 2 (Green & Co.)
 L. Williams Minor Maladies Cr. 8vo 5s (Baillière, Tindall & Cox)
 The Sigmoidoscope Mommery (Baillière, Tindall & Cox)
 Moynihan's Hernia (Baillière, Tindall & Cox)
 Syphilology and Venereal Disease C. F. Marshall (Baillière, Tindall & Cox)
 Philippine Journal of Science
 Khartoum Laboratories Report
 The Police Report E. B. & A.
 The Punjab Asylums Report

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Capt. D. McCay, I.M.S., Calcutta. Major Herbert, I.M.S., Bombay.
 Major Elliot, I.M.S., Madras. Capt. Oxley, I.M.S., Secol. Major Jennings, I.M.S., Ahmedabad. Lt. Col. Bannerman, I.M.S., Bombay. Major Lamb, I.M.S., Bombay. Capt. Barnardo, I.M.S., Bhagalpur. Lt. Col. Crawford, I.M.S., Hughli. Major Bowman, I.M.S., Ranchi. Major Barry, I.M.S., Burma. Capt. Patton, I.M.S., Madras. Capt. Christophers, I.M.S., Madras.

* Disease of Warm Countries. Edited by Dr. James C. Little.

† Tropical Diseases. 1900.

‡ Comptes rendus de l'Académie des Sciences, 1895, 6.

